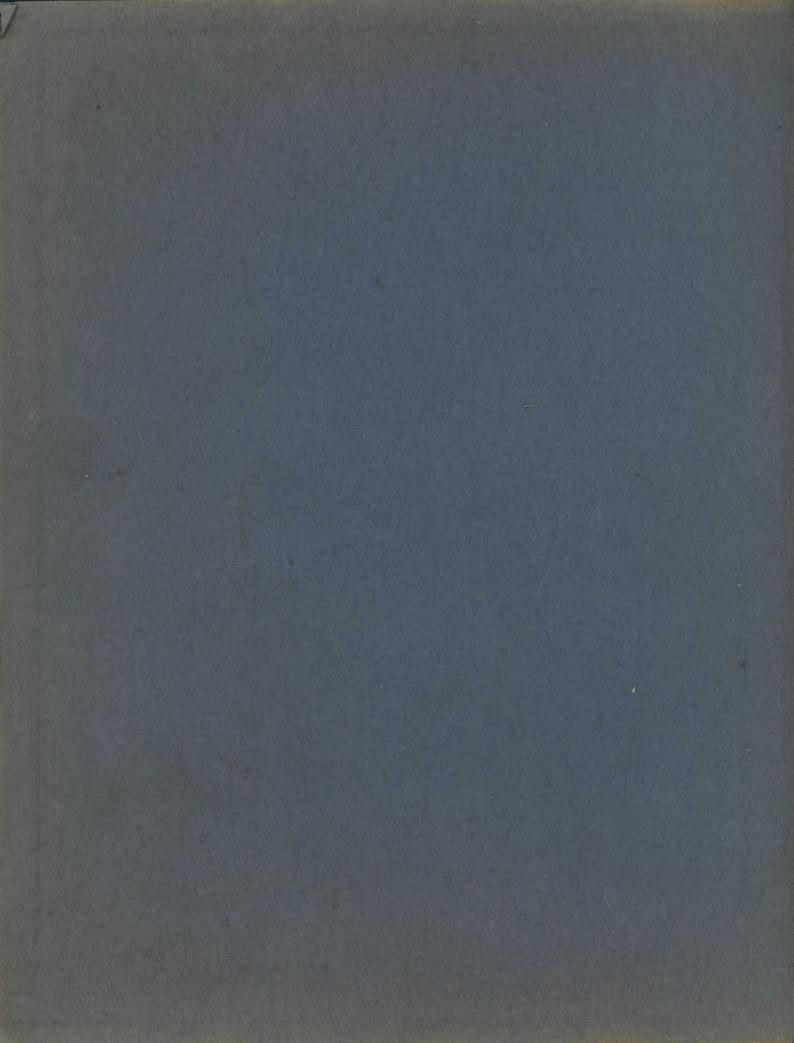


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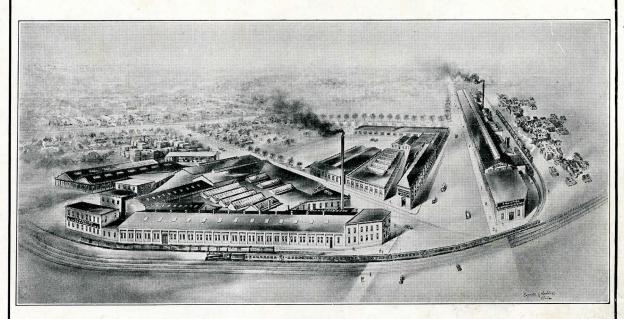


FOUNDED 1875 C. B. LONG, President ED. DONOHOE, Vice-President

A. M. SMITH, Treasurer O. H. HERTZLER, Secretary

INCORPORATED
1887

CATALOGUE No. 52



Illustrated Catalogue of "Champion"

Blowers
Forges
Tuyere
Irons
Drills
Chucks
Lathes

Power Hack
Saw Machines
Grinders
Buffers
Garage and
Arbor Presses
Motor Stands

Screw Plates
Taps
Dies
Tap Wrenches
Thread
Cutting

Machines

Tire and Axle
Shrinkers and
Welders
Tire Benders
Power Hammers
Punches
Shears

Exhaust Fans Disc Wheels Fans for Heating, Ventilating, Drying and Mechanical Draft

Cream Separators

Manufactured by

The Champion Blower & Forge Company

Lancaster, Pa., U.S.A.

CABLE ADDRESS—"CHAMPION LANCASTER" (Pennsylvania)



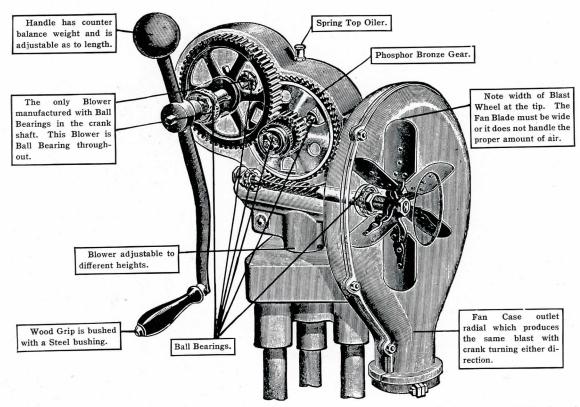


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THE 400 CHAMPION "PATENTED" HIGH-SPEED SPIRAL GEARING SHOWN IN DETAIL



The 400 Champion "Patented" High-Speed Spiral Gearing in transparent cut shows the machinery in detail as every part is fitted up when in working order.

This transparent cut, in connection with the gearing cut, shows the inner workings of the "Famous 400" Gearing, so that the inexperienced can understand and appreciate its high grade construction.

The Fan Case is pear-shaped with outlet radial which produces the same blast with the crank turning either direction.

Each Turn of the Crank produces 46 complete Revolutions of the Blast Wheel. All Blower Speeds should be counted before purchasing, as high speed of the Fan Wing can only make a High Pressure White Heat Blast.

The blades on the blast wheel are not tapered or narrow, but are the same width at the tip of the blade as at the hub, therefore must throw a larger volume of air than a tapered blade. This wide blade gives the operator full benefit of the blast from every revolution of the crank and with the high-speed spiral gearing produces a white heat pressure blast, equal to a blower run by power.



All this means that the Champion 400 Blower, with $12^{\prime\prime}$ fan case and with wide blade blast wheel, produces more volume at a higher pressure than any other 16" hand blower with narrow or tapered blade.

The 400 Champion "Patented" High-Speed Spiral Gearing has been manufactured by us for many years and is in use on over a million Champion Steel Blowers and Forges, distributed in every section of the globe.

The 400 Spiral Shaft with Fan Wing attached is the only piece of the entire gearing that runs at high speed.

Every piece in the High-Speed Spiral Gearing is built large, powerful and substantial. Fully equal to ten times the high speed required to run a Blower.

The 6-inch Special Phosphor Bronze Spiral Gear and the Tool Steel Spiral Shaft are the same size in diameter and teeth used on Spirals running at 20,000 revolutions per minute, carrying heavy loads.

The 400 Champion Concaved Spiral Gear, riding the Spiral Shaft lengthwise, meshes eight (8) full teeth continuously, which forever makes lost motion or noise im-

The 400 Champion Ball Bearings are all adjustable with cups and cones lathe-turned from the solid tool steel bar and hardened like glass, then ground and polished to the finish of a mirror, thus making the most perfect and durable High-Speed Adjustable Bearing that can be manufactured.

WERN FORGE GO.

LANCASTER.PA.U.S.A.



THE FAMOUS 400 CHAMPION BLOWER

THE ORIGINAL CUT GEAR HAND BLOWER, WITH OVER A MILLION IN USE

This is the Blower that has Revolutionized the World's Hand Blacksmiths' Fires and Made Them a Most Profitable Business

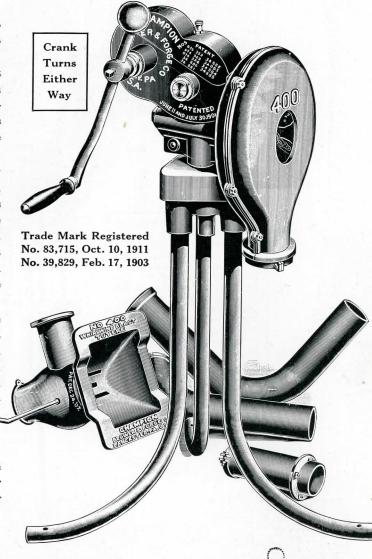
The Famous 400 Champion Blowers and Forges, after many years of work with over a million in use, unquestionably stand in a class of their own.

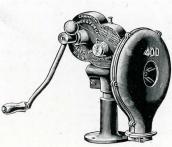
The users are their staunchest supporters and it is our desire that those who are not familiar with their value ask what the Owners Say, and particularly those who have used them many years, as it is the only blower as good after many years' use as when new.

The 400 "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron and complete piping is furnished with the 400 Blower without extra charge. This Tuyere, in combination with the high speed of the "Famous 400" Blower, produces a circular, rotary, "whirlwind," white heat blast which heats iron at least one third quicker and with an equal saving in coal, as no heat is wasted by being blown up the chimney.

The 400 Blower and "Whirlwind" Blast Tuyere represents in every respect the greatest value in a Blast Producer. Its Gearings, in connection with the Adjustable Ball Bearings, are constructed from the highest grade of Special Phosphor Bronze and Tool Steel, turned and finished with special Automatic Machinery, thus making the Blower run in the most accurate and smooth manner that can be constructed by human hands.

The 400 Blower can be supplied with 6 x 1-inch tight and loose pulley for both hand and power drive, or can be mounted on a short pedestal for bench use.





No. 400 Bench.

No.	Fan	Weight	Code
400 Stand	12"	160 lbs.	Facanea
420 Stand	14''	170 lbs.	Facimile
421 Stand	16"	175 lbs.	Facolta
4001 Power	12''	170 lbs.	Facoltoso
4201 Power	14''	175 lbs.	Facesse
421 Power	16"	185 lbs.	Facianassi
400 Bench	12"	145 lbs.	Fag

Champion Steel Blacksmith Blower is made for either right- or left-hand fires. Right-hand Blowers always furnished unless otherwise specified.







No. $400\frac{1}{4}$.



THE CHAMPION STEEL RIVET FORGES

THE ORIGINAL BALL BEARING RIVET FORGE

Made with Adjustable Ball Bearings Only



No. 401.

Champion Steel Rivet Forges have been on the market for many years and are used by the great majority of Railroads, Bridge Builders, Boiler and Structural Iron Workers of the world, also very desirable for garages. Nothing was ever seen to even approach them for a strong positive blast. We can guarantee them to increase the work over and above any other make of Rivet Forge 25%. Their Gearing is the "Famous 400" Champion "Patented" High Speed Spiral Gearing. They run noiseless, and can be taken apart for transportation, and again set up in a few minutes. They will produce blasts to weld 3½- to 4-inch iron in ten minutes. No. 401 Steel Rivet Forge is used on 99 out of 100 Structural Steel Buildings constructed. Crank Turns either way to make the blast. Each Turn of the crank produces 46 complete Revolutions of the Fan Wing.

No.	Hearth	Fan	Height	Weight	Code
401	18"	9"	30′′	140 lbs.	Facanhoso
401 %	22"	9"	30"	145 lbs.	Facoti
4013	24"	10"	30′′	150 lbs.	Facturada













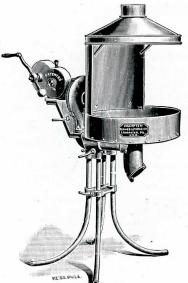
THE CHAMPION STEEL TOOLMAKERS' FORGES

WITH HALF HOOD

Made with Adjustable Ball Bearings Only

Champion Steel Toolmakers' Forges are like the Steel Rivet Forges on opposite page, the difference being the Half Hood, which makes them a Forge for inside work for Toolmakers, Jewelers, Bicycle Repairers, Tempering, Tank Builders, Miners, Prospectors, making Repairs on Boilers, Steam and Elevated Railroads, and Garage and Oil Field Work. Crank Turns either way to make the blast. Each Turn of the crank produces 46 complete Revolutions of the Fan Wing.

No.	Hearth	Fan	Height	Weight	Code
402	18"	9"	30"	150 lbs.	Fachada
$402\frac{1}{2}$	22"	9"	30"	155 lbs.	Factivel
4023	24"	10"	30"	165 lbs.	Facultatif



No. 402.

THE CHAMPION STEEL TOOLMAKERS' FORGES

WITH CLOSED HOOD

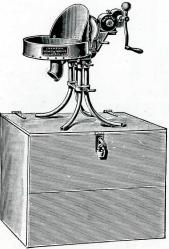
Made with Adjustable Ball Bearings Only

Champion Steel Toolmakers' Forges are like the Steel Rivet Forges on opposite page, the difference being the closed hood, which makes them a forge for inside work where combustible material is kept. These forges can be taken apart and again set up with great ease and can be conveniently moved from place to place. The 400 Champion "Patented" High Speed Spiral Gearing is used. For further description see opposite page.

No.	Hearth	Fan	Height	Weight	Code
403	18''	9"	30"	155 lbs.	Fachbaum
$403\frac{1}{2}$	22"	9"	30"	160 lbs.	Facturar
403 3	24"	10"	30"	170 lbs.	Factorium



No. 403.



No. 4011 with Case.

THE CHAMPION STEEL MINERS' AND PROSPECTORS' FORGE

Made with Adjustable Ball Bearings

No. 4014 Champion Steel Miners' and Prospectors' Forge is in size of hearth and blower same as No. 401 Forge with shortened legs.

This Forge is suitable for Government, Miners', Prospectors', Boilermakers' and Bridge Builders' use wherever a Forge is needed for transportation, where compactness and convenience with large capacity is necessary.

The size of the case required to hold the Forge is $34\frac{3}{4}$ inches long, $22\frac{1}{4}$ inches high and $20\frac{1}{2}$ inches wide.

No.	Hearth	Fan	Height	Weight	Code
4011 Without Case	18"	9"	14"	135 lbs.	Facoula
4014 With Case	18''	9''	14''	190 lbs.	Facondita





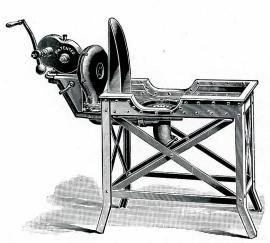


THE CHAMPION STEEL RIVET FORGES

Made with Adjustable Ball Bearings Only

Size of Hearth 24 x 24 Inches

Fan 9 Inches in Diameter



No. 404. With Shield.

No. 404 Champion Steel Rivet Forge has a 24-inch square hearth with angle steel legs riveted to hearth. In construction of machinery for operating the Blower and in connection with size of Fan, this Forge is precisely the same as No. 401, illustrated on page 4.

For many kinds of work a 24-inch square Hearth Forge may be more preferable. The Hearth being larger, naturally there is more surface for fire, coal, tools, etc.

Hearth is formed from a single sheet of No. 10 gauge steel plate with edges reinforced with $\frac{3}{4}$ -inch angle iron, making it absolutely seamless—therefore, rust proof and indestructible.

It is a very light, stiff and practical Forge for Garages, Government use, Race Horse Stables, Elevated and Steam Railroads, Bridge and Tank Builders, Boiler Work and Oil Field Work.

The Blower and all machinery can be taken off for transportation. For further information as to the construction of machinery, ease of operation, etc., refer to pages 2 and 3.

Crank Turns either way to make blast.

Each Turn of the crank produces 46 complete Revolutions of the Fan Wing.

No. $404\frac{1}{2}$ Champion Steel Forge is the same in size of hearth, fan, height and gearing as No. 404. The only difference between the Nos. 404 and $404\frac{1}{2}$ Forges is the tuyere iron and the arm to which the blower is attached to the No. $404\frac{1}{2}$ Forge, which are the same as shown in cut of No. 406 Forge, page 7.

No.	Hearth	Fan	Height	Weight	Code
404	24 x 24"	9''	30"	165 lbs.	Facheabais
4041	24 x 24"	9''	30"	220 lbs.	Factatos

THE CHAMPION STEEL TOOLMAKERS' FORGES

Made with Adjustable Ball Bearings Only

Size of Hearth 24 x 24 Inches

Fan 9 Inches in Diameter

No. 405 Champion Steel Toolmakers' Forge is like No. 404 above, the only difference being the Half Hood on this Forge, which makes this a Forge for inside work.

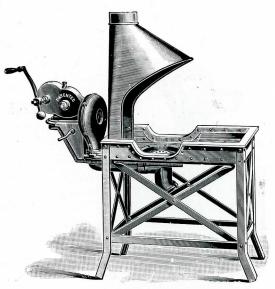
It is especially adapted for Horseshoers, Garages, Toolmakers, Jewelers, Bicycle Repairers, Tempering Tools, Tank Builders, Miners, Prospectors, making repairs on Boilers, Oil Field Work, Steam and Elevated Railroads, or any inside or outside work.

Crank Turns either way to make the blast.

Each Turn of the crank produces 46 complete Revolutions of the Fan Wing. See pages 2 and 3.

No. $405\frac{1}{2}$ Champion Steel Forge is the same in size of Hearth, Fan, Height, and Gearing as No. 405. The only difference between the Nos. 405 and $405\frac{1}{2}$ Forges is the Tuyere Iron and the Arm to which the Blower is attached to the No. $405\frac{1}{2}$ Forge, which are the same as shown in cut of No. 407 Forge, page 7.

No.	Hearth	Fan	Height	Weight	Code
405	24 x 24"	9"	30′′	175 lbs.	Fachendon
4051	24 x 24"	9"	30''	230 lbs.	Factorage



No. 405. With Half Hood.



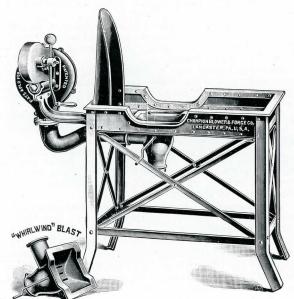


THE CHAMPION STEEL BOILERMAKERS' FORGE NO. 406

Made with Adjustable Ball Bearings Only

Size of Hearth 30 x 30 Inches

Fan 10 Inches in Diameter



No. 406 Champion Steel Boilermakers' Forge is made of heavy steel with legs riveted to the Hearth and thoroughly braced, making it a stiff and powerful forge large enough in Blast for most any work.

Hearth is formed from a single sheet of No. 10 gauge steel plate with edges reinforced with $\frac{3}{4}$ -inch angle iron, making it absolutely seamless—therefore, rust proof and indestructible.

This Forge is supplied with 10-inch Fan, especially suitable and practical for Government Work, Race Horseshoers, Elevated or Steam Railroads, Bridge and Tank Builders, Boiler Works, Garages or any kind of Blacksmith work.

This Forge is now furnished regularly with the No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron without extra cost.

Crank Turns either direction to make the Blast.

Each Turn of the Crank produces 46 complete Revolutions of the Blast Wheel. See pages 2 and 3.

No. Hearth Fan Height Weight Code $406 \ 30 \times 30'' \ 10'' \ 30'' \ 280 \ lbs.$ Fachons With water tank, extra

THE CHAMPION STEEL MACHINISTS' FORGE NO. 407

Made with Adjustable Ball Bearings Only

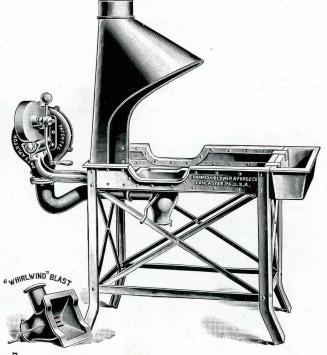
Size of Hearth 30 x 30 Inches

Fan 10 Inches in Diameter

No. 407 Champion Steel Machinists' Forge is precisely the same as No. 406 shown above, the only difference being the Half Hood, which makes this Forge suitable for inside work. It is especially useful for Garages, Machinists, Plumbers, Miners, Marble Workers, Millers, Railroad Repair Shops, Locksmiths, Planters and Manufacturers, who find it a very convenient and economical Forge.

Crank Turns either way to make a Blast. Each Turn of the Crank produces 46 complete Revolutions of the Blast Wheel. See pages 2 and 3.

No. Hearth Fan Height Weight Code 407 $30 \times 30''$ 10'' 30'' 285 lbs. Fachplatte With water tank, extra

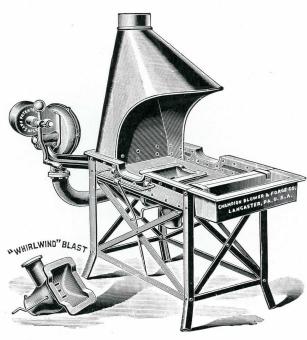






THE CHAMPION STEEL BLACKSMITHS' FORGES

Made with Adjustable Ball Bearings Only



No. 408.

Nos. 408 and 409 Champion Steel Blacksmiths' Forges represent the "Famous 400" Champion Steel Blower shown on pages 2 and 3, converted into a most complete and practical Blacksmiths' Forge.

These Forges have been universally adopted as the acme of success by all nations as a Blacksmiths' Forge. Their construction in Bracing and Bridging of angle steel for stiffness is perfection.

Hearth is formed from a single sheet of No. 10 gauge steel plate with edges reinforced with ³/₄-inch angle iron, making it absolutely seamless—therefore, rust proof and indestructible.

These Forges are furnished regularly with No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron without extra cost.

It has the benefit received from the condensation of the heat to the center of the fire from the circular rotary Whirlwind Blast with no waste of heat going up the chimney, and will soon save enough in the cost of coal alone to pay for the Forge.

These Forges are sold with our guarantee to meet every wish that the Blacksmith can demand from light up to the heaviest work.

Crank Turns either way to make a Blast.

Each Turn of the Crank produces 46 complete Revolutions of the Blast Wheel. All Blower Speeds should be counted before purchasing, as high speed of the Fan Wing can only make a High Pressure White Heat Blast.

No.	Hearth	Fan	Height	Weight	Code
408	30 x 36"	12''	30′′	310 lbs.	Fachsieb
409	30 x 40"	12"	30"	325 lbs.	Fachtofel
With v	vater tank, extr	a			

THE CHAMPION STEEL HORSESHOERS' FORGE

WITH FULL HOOD

Made with Adjustable Ball Bearings Only

Size of Hearth 30 x 36 Inches

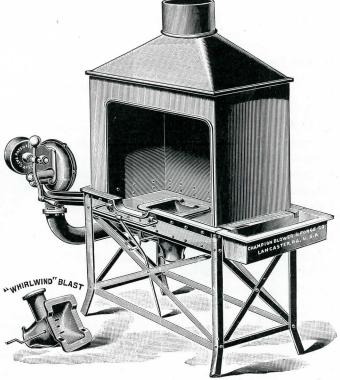
Fan 12 Inches in Diameter

No. 408½ Champion Steel Horseshoers' Forge is precisely the same as the No. 408, shown above, excepting this Forge is furnished with full hood, as the illustration shows.

This Forge is very convenient where shops wish to condense their smoke and positively have it all go out the chimney and is very much appreciated in all large American cities.

For full description of this Forge, read the description of the No. 408 Forge.

No.	Hearth	Fan	Height	Weight	Code
4081	30 x 36"	12''	30′′	365 lbs.	Factrix
$409\frac{1}{2}$	30 x 40"	12"	30"	380 lbs.	Factrixas
With w	ater tank, ex	tra			



No. $408\frac{1}{2}$.

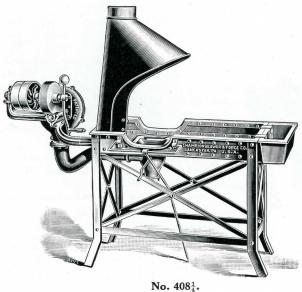




THE CHAMPION STEEL POWER AND HAND BLACKSMITH FORGE

A POWER FORGE THAT REQUIRES NO COUNTERSHAFT
A GREAT FORGE FOR SHOPS RUN BY GASOLINE ENGINES
A POWER FORGE THAT CAN BE RUN BY HAND WHEN POWER IS NOT IN USE

Made with Adjustable Ball Bearings Only



No. 408¹⁄₄ Champion Steel Power and Hand Blacksmith Forge represents a convenient and complete Forge for large fires for Blacksmiths, Garages, and all general Blacksmithing to be run by either power or hand, one or the other always being ready.

Hearth is formed from a single sheet of No. 10 gauge steel plate with edges reinforced with ³/₄-inch angle iron, making it absolutely seamless—therefore, rust proof and indestructible.

This Forge represents in its entire make-up and construction the No. 408 Forge shown on page 8 with the exception that this Forge is fitted with power or hand drive, making it very convenient in shops where gasoline engines or single motor power is used. The fact that the Blower has its own tight and loose pulley countershaft—therefore belted direct from the line shaft—makes it possible to be used any time.

This Forge is furnished same as the No. 408 Forge with the "Whirlwind" Blast Tuyere Iron, as well as the High Speed Spiral Gearing shown on page 2.

No.	Hearth	Fan	Height	Weight	Code
4081	30 x 36"	12"	30"	315 lbs.	Faccenda
4081A	30 x 36"	14"	30"	320 lbs.	Faccia
408 ¹ / ₄ B	30 x 36"	16"	30"	330 lbs.	Faceto
With wat	er tank, extra				

THE CHAMPION LARGE ROUND STEEL FORGE

Size of Hearth 36 Inches in Diameter Fan 12 Inches in Diameter

No. 410 Champion Steel Forge has round Hearth 36 inches in diameter constructed from Heavy Steel Plate with telescopic canopy hood which is not found on any other hand forge.

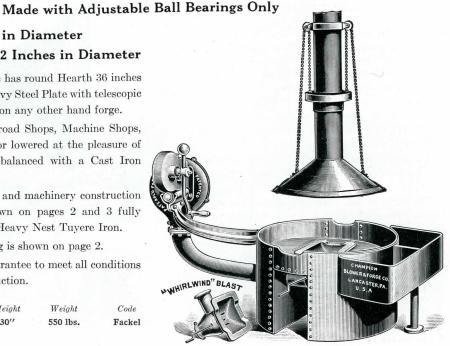
It will be appreciated in Railroad Shops, Machine Shops, etc., as the Hood can be raised or lowered at the pleasure of the Operator, the Hood being balanced with a Cast Iron Ring.

This Forge represents in Blast and machinery construction the "Famous 400" Blower shown on pages 2 and 3 fully equipped with Whirlwind Blast Heavy Nest Tuyere Iron.

The High Speed Spiral Gearing is shown on page 2.

This Forge is sold with our guarantee to meet all conditions in perfection of blast and construction.

No.	Hearth	Fan	Height	Weight	Code
410	36" Dia.	12''	30′′	550 lbs.	Fackel



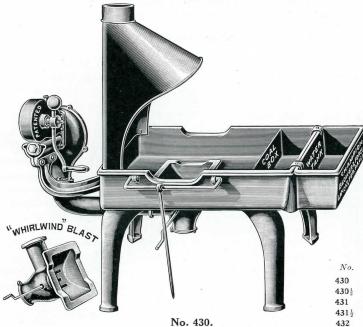






THE CHAMPION LARGE CAST IRON FORGES

Made with Adjustable Ball Bearings Only



The Champion Large Cast Iron Blacksmith Forges represent the largest Blacksmith Forges ever built. We have a demand for a Forge of this magnitude in Railroad Shops, Plow Works, Heavy Wagon Works, and Blacksmith Shops making extra heavy work a specialty. The Hearths are built of cast iron and very heavy, making them a Forge that can be built up with fire brick, and giving every advantage that can possibly be had with a Forge built out of stone or brick. The Blower attached to these Forges is the Famous 400 Champion "Patented" High-Speed Spiral-Geared Blower, illustrated on pages 2 and 3.

All Champion Large Cast Iron Forges are supplied with the No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron and Water Tank without extra cost.

Hearth	Depth	Fan	Height	Weight	Code
38 x 42"	7''	12''	26"	550 lbs.	Faltamos
38 x 42"	3111	12"	26"	545 lbs.	Faltnut
39 x 53"	7''	14"	26"	660 lbs.	Faltar
48 x 62"	7''	14"	26"	970 lbs.	Faltzat
39 x 53"	7"	16"	26"	690 lbs.	Falter
48 x 62"	7''	16"	26"	980 lbs.	Faltosb

THE CHAMPION CAST IRON BLACKSMITH FORGE

432

Size of Hearth 32 x 45 Inches

Fan 12 Inches in Diameter

Made with Adjustable Ball Bearings Only

No. 433 Champion Cast Iron Hearth Blacksmith Forge carries with it all the improvements and advantages that can be had. This Hearth is 32×45 inches and is supplied with a Sloped Bottom Coal Box which is entirely out of the way, as it is beneath the level of the bottom of the Hearth, thus keeping the coal in any degree of dampness that the operator desires.

The Blower used is the Famous 400 Champion "Patented" High-Speed Spiral Geared Blower shown on pages 2 and 3.

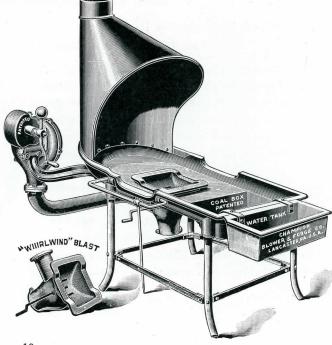
The Forge is supplied with the No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron.

The Blast of this Forge is sufficient for any Blacksmith. We recommend it for the heaviest as well as the lightest work and for use in Blacksmith shops, Garages, Machine shops, etc., and any special work.

Crank Turns either way to make a Blast.

Each Turn of the Crank produces 46 complete Revolutions of the Blast Wheel, making a High Pressure White Heat Blast.

To.	Hearth	Fan	Weight	Code
33	32 x 45"	12"	410 lbs.	Fabagella
7ith w	ater tank extra			



LANCASTER.PA.U.S.A.



THE CHAMPION BOILERMAKERS' FORGE

WITH CAST IRON HEARTH

Size of Hearth 23 x 35 Inches

Fan 10 Inches in Diameter

Made with Adjustable Ball Bearings Only



No. 434 Champion Boilermakers' Forge, with cast iron hearth, is supplied with the No. 400 Champion "Patented" High-Speed Spiral Gearing Blower as shown on pages 2 and 3. Size of hearth 23 x 35 inches, making it a large and heavy Forge for Boilermakers, Bridge Builders, Ship Builders, Railroad Shops, Tank Builders, Garages, or for any purpose where a large Forge of this size is desired. It is guaranteed to supply sufficient blast for welding 4-inch iron in ten minutes with great ease.

No.	Hearth	Fan	Height	Weight	Code
434	23 x 35"	10''	30"	245 lbs.	Fabalibus

THE CHAMPION MACHINISTS' FORGE

WITH CAST IRON HEARTH

Size of Hearth 23 x 35 Inches

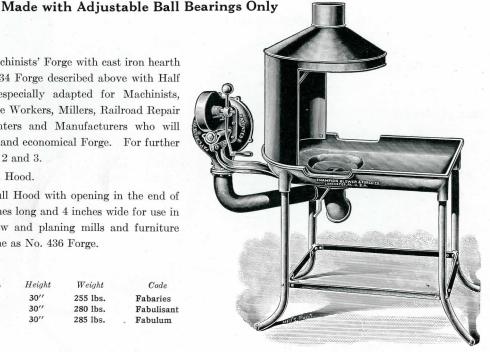
Fan 10 Inches in Diameter

No. 435 Champion Machinists' Forge with cast iron hearth is the same as the No. 434 Forge described above with Half Hood. This Forge is especially adapted for Machinists, Plumbers, Miners, Marble Workers, Millers, Railroad Repair Shops, Locksmiths, Planters and Manufacturers who will find it a very convenient and economical Forge. For further particulars refer to pages 2 and 3.

No. 436 Forge has Full Hood.

No. $436\frac{1}{2}$ Forge has Full Hood with opening in the end of same; also tuyere 12 inches long and 4 inches wide for use in brazing band saws in saw and planing mills and furniture factories. Otherwise same as No. 436 Forge.

No.	Hearth	Fan	Height	Weight	Code
435	23 x 35"	10"	30′′	255 lbs.	Fabaries
436	23 x 35"	10"	30"	280 lbs.	Fabulisant
$436\frac{1}{2}$	23 x 35"	10''	30′′	285 lbs.	Fabulum



No. 435.

THE CHAMPION RIVET FORGE

WITH CAST IRON HEARTH



Made with Adjustable Ball Bearings Only Size of Hearth 22 Inches in Diameter Fan 9 Inches in Diameter

No. 437 Champion Rivet Forge has Cast Iron Hearth and is supplied with the 400 Champion "Patented" High Speed Spiral Geared Blower, shown on pages 2 and 3.

It is a very desirable Forge for Jewelers, Bicycle Repairers, Tempering Tools, Tank Builders, Miners, Prospectors, Boilermakers, Bridge Builders, Elevated Railroads, etc.

Crank Turns either way to make a Blast.

Each Turn of the Crank produces 46 complete Revolutions of the Fan Wheel. All Blower Speeds should be counted before purchasing, as high speed of the Fan Wing can only make a High Pressure White Heat Blast.

No.	Hearth	Fan	Height	Weight	Code
437	22" Dia.	9''	33''	170 lbs.	Fabbrile

THE CHAMPION TOOLMAKERS' FORGE

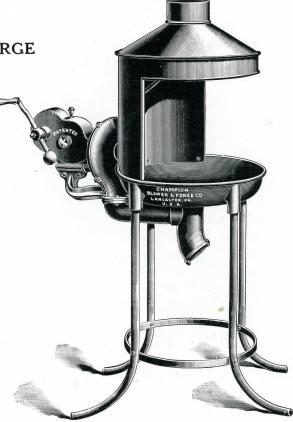
WITH CAST IRON HEARTH

Made with Adjustable Ball Bearings Only

Size of Hearth 22 Inches in Diameter Fan 9 Inches in Diameter

No. 438 Champion Toolmakers' Forge is the same as the No. 437 Forge shown above with the exception that it has Half Hood.

No.	Hearth	Fan	Height	Weight	Code
438	22"	9"	33′′	195 lbs.	Fabelhaft



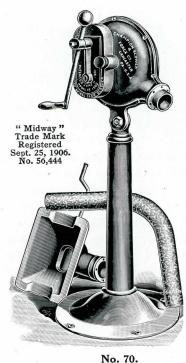






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THE CHAMPION "MIDWAY" SPIRAL-GEARED BLOWERS



The Champion "Midway" Spiral-Geared Blowers are built with Helical Spiral Gearing, a well-built cut gear Blower that can be sold for less money than the Famous 400 Champion Steel Blower, shown on pages 2 and 3, which represents the most perfect, durable and highest speed Spiral-Geared Blower that money and skill can manufacture. "Midway" Blowers have Ball Bearings on high speed shaft as illustrated below. Other bearings on "Midway" Blowers are bushed, which is more than other makers do on their highest grade product.

The Champion "Midway" Spiral Gearing is simple in construction and without small gears or pinions; and therefore is durable and practical. We recommend this Blower as a strong and well-built Blower with a good blast and is sold with our guarantee. The gearing runs in oil in a dust-proof casing, the crank turns in either direction to make the blast. As illustration shows, Blower is supplied with Heavy Nest Ball Tuyere Iron weighing 50 pounds, and pipe complete.

No. 70½ Champion "Midway" Spiral-Geared Bench Blower is built in detail of construction the same as our No. 70 "Midway" Blower, the only difference is, that the Bench Blower is fitted with a short pedestal so as to be mounted on a bracket or attached to a bench.

on a bracket	of decidences		
No.	Fan	Weight	Code
70 Pedestal 70L Legs 70½ Bench	12" 12" 12"	170 lbs. 135 lbs. 140 lbs.	Fabianos Fabinus Fabbro



No. 70L.

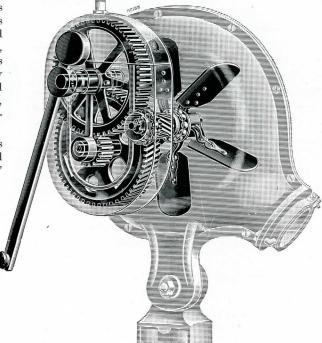
THE NO. 70 CHAMPION "MIDWAY" SPIRAL GEARING SHOWN IN DETAIL

The No. 70 Champion "Midway" Spiral Gearing has been used by us for many years in thousands of Blowers and Forges, giving excellent satisfaction. It will be noted that the high speed gear and pinion are helical in design, the high speed pinion shaft operating on ball bearings equipped with hardened tool steel cups and cones, thereby insuring long life and easy and efficient operation. All other bearings in this Blower are equipped with bushings, insuring, if necessary, replacement and practically unlimited service.

The No. 70 Champion "Midway" Spiral Gearing is guaranteed to be of the best construction possible and stands second only to the No. 400 Champion "Patented" High Speed Spiral Gearing as shown on pages 2 and 3.



No. $70\frac{1}{2}$.





THE CHAMPION "MIDWAY" SPIRAL-GEARED BLACKSMITH FORGE



The Champion "Midway" Spiral-Geared Blacksmith Forge has cast iron hearth with Coal Box and Heavy Nest Tuyere Iron and direct drive "Midway" Spiral Gearing. We have built this Forge to place before the Blacksmith world a wellbuilt direct-drive Blacksmith Forge which produces a good strong blast, and a Forge that can be sold for less money than the "Famous" 400 Champion Steel or Cast Iron Forges. The gearing used for producing the blast in this Forge is the Champion "Midway" or Cross Spiral Gearing shown on page 13. It is simple in construction and without small gears or pinions. We recommend this Forge as a strong, durable, cast iron Forge. The gearing is enclosed in a dust-proof casing, and the crank turns in either direction to make the blast.

HearthWeight CodeNo. Height71 32 x 45" 12" 30" 420 lbs. Fabelsage With water tank, extra

BOILERMAKERS' AND MACHINISTS' FORGES

WITH CAST IRON HEARTH

Size of Hearth 23 x 35 Inches Fan 10 Inches in Diameter

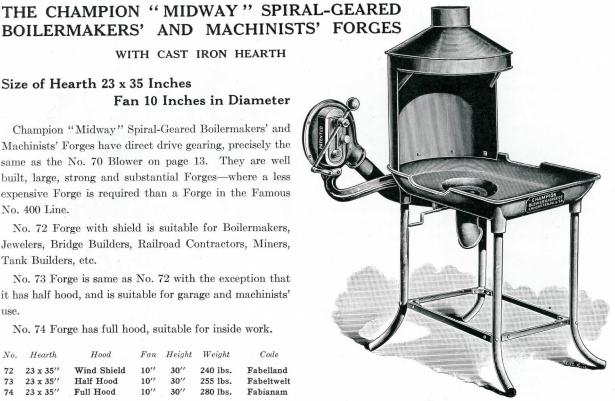
Champion "Midway" Spiral-Geared Boilermakers' and Machinists' Forges have direct drive gearing, precisely the same as the No. 70 Blower on page 13. They are well built, large, strong and substantial Forges—where a less expensive Forge is required than a Forge in the Famous No. 400 Line.

No. 72 Forge with shield is suitable for Boilermakers, Jewelers, Bridge Builders, Railroad Contractors, Miners, Tank Builders, etc.

No. 73 Forge is same as No. 72 with the exception that it has half hood, and is suitable for garage and machinists'

No. 74 Forge has full hood, suitable for inside work.

No.	Hearth	Hood	Fan	Height	Weight	Code
72	23 x 35"	Wind Shield	10''	30′′	240 ibs.	Fabelland
73	23 x 35"	Half Hood	10"	30"	255 lbs.	Fabeltwelt
74	23 x 35"	Full Hood	10''	30′′	280 lbs.	Fabianam



No. 73. With Half Hood.



THE CHAMPION "MIDWAY" SPIRAL-GEARED RIVET FORGE



No. 75. With Shield.

WITH CAST IRON HEARTH

Size of Hearth 22 Inches in Diameter

Fan 10 Inches in Diameter

No. 75 Champion "Midway" Spiral-Geared Rivet Forge has cast iron hearth, and is supplied with the "Midway" or Cross Spiral Gearing; same as the Blower shown on page 13. It is a good, strong and durable Forge, and will give the best of satisfaction, where a Forge less expensive than the Forges in the Famous 400 Line is wanted. It is suitable for Jewelers, Bicycle Repairers, Tempering Tools, Tank Builders, Miners, Prospectors, Boilermakers, Elevated Railroad Contractors, Oil Field Work, etc.

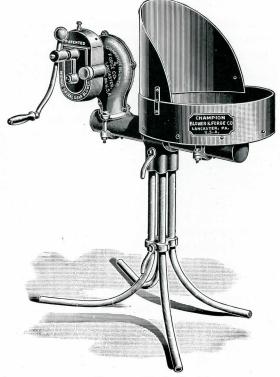
No.	Hearth	Hood	Fan	Height	Weight	Code
75	22"	Wind Shield	10"	33"	170 lbs.	Fabelweise
76	22"	Half Hood	10"	33''	180 lbs.	Fabricaba
77	22"	Full Hood	10"	33''	200 lbs.	Fabricados

THE CHAMPION "MIDWAY" SPIRAL-GEARED RIVET FORGES

WITH STEEL HEARTH

No. 78 Champion "Midway" Spiral-Geared Steel Rivet Forge enables us to furnish a very well built steel rivet forge in the "Midway" Line for those who do not wish a cast iron hearth, such as the No. 75, shown above. This Forge produces a good blast and is sold guaranteed as a first-class Forge in every respect and has the advantage in packing for transportation that east iron forges do not enjoy, for the reason that it can be knocked down and packed very closely and again set up in a short time for operation. For those not wishing to invest the money for the highest grade and most perfect steel Forge ever built, No. 401 shown on page 4, we recommend this Forge. This forge is suitable for Bridge Builders, Elevated and Steam Railroad Contractors, Tank Builders, Miners, Prospectors, and Boilermakers. Crank turns either way to make the blast.

No.	Hearth	Fan	Height	Weight	Code
78	18"	10"	30′′	120 lbs.	Fabela
78A	22"	10"	30"	130 lbs.	Fabelarem
78B	24"	10"	30′′	135 lbs.	Fabulurent



No. 78. With Shield.





THE CHAMPION "MIDWAY" SPIRAL-GEARED RIVET FORGES

WITH STEEL HEARTH

Size of Hearth 24 x 24 Inches

Fan 10 Inches in Diameter



No. 79. With Shield.

No. 79 Champion "Midway" Steel Rivet Forge has Square Hearth formed from a single sheet of No. 10 gauge steel plate with edges reinforced with \(^3\)-inch angle iron, making it absolutely seamless—therefore, rust proof and indestructible, with Angle Steel Legs riveted to the Hearthbeing built and braced firmly and substantially.

Its gearing for operating the Blower is the same as No. 70 Blower shown on page 13, the only difference being that this Forge has a fan 10 inches in diameter.

This Forge is well built and will produce a strong, substantial Blast. It is nice running in its gearing and is recommended to those looking for a Steel Forge of this style sold at a moderate price.

The shape of the Hearth makes it a particularly desirable forge for Government Use, Race Horse Stables, Elevated and Steam Railroads, Prospectors and Tank Builders, etc.

No.	Hearth	Fan	Height	Weight	Code
79	24 x 24"	10"	30"	185 lbs.	Frabelo
$79\frac{1}{2}$	30 x 30"	10"	30"	215 lbs.	Frabotats
With he	of hood extra				

THE CHAMPION "MIDWAY" SPIRAL-GEARED BLACKSMITH STEEL FORGES

Size of Hearth 30 x 36 Inches

Fan 12 Inches in Diameter

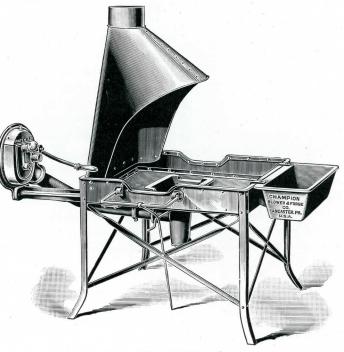
No. 80 Champion Blacksmith's Steel Forge represents a substantial built steel forge. Hearth is formed from a single sheet of No. 10 gauge steel plate with edges reinforced with \(^3\)-inch angle iron, making it absolutely seamless—therefore, rust proof and indestructible, and legs firmly riveted to the hearth and substantially braced. It has perpendicular sides 6 inches wide making the hearth 6 inches deep, covering every demand for an up-to-date blacksmith fire.

The Blower and Gearing on this Forge is the Midway Spiral Gearing, as used on the Midway Blower, shown on page 13.

This Forge is supplied with Heavy Nest Tuyere Iron, weighing 50 lbs.; the same Tuyere Iron furnished with Midway Blower.

This Blower is well built, quiet and easy running, and guaranteed as strictly first class blacksmith blast-making Forge at a moderate price.

No.	Hearth	Fan	Height	Weight	Code
80	30 x 36"	12"	30"	305 lbs.	Fracebor
801	30 x 40"	12"	30′′	315 lbs.	Fraceons
With	water tank, ex	tra			

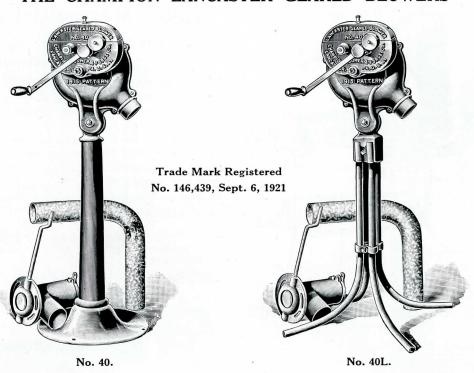


No. 80. With Half Hood.





THE CHAMPION LANCASTER GEARED BLOWERS



The Champion Lancaster Geared Blowers show improvement in general construction, which makes them the best lowpriced blower that has ever been placed on the market.

The improvement consists of an increase in the size of the gear case, allowing larger gears and larger bearings, whereby the life of the blower is doubled, and the fan case is constructed heavier and stronger.

The Champion Lancaster Geared Blowers are well built, low priced, direct-driven blowers which meet the demand for a lower priced blower than the Famous 400 Champion "Patented" High Speed Spiral-Geared Blower, shown on pages 2 and 3, or the "Midway" Spiral-Geared Blacksmith Blower, shown on page 13. This Blower is supplied with the Champion Patent Adjustable Nozzle Tuyere Iron and Pipe complete. Extra large gears are used, all accurately cut, running in a bath of oil and all lubricated same as on our higher priced Blowers. The high speed spindle is equipped with a case-hardened endthrust ball bearing—the only Ball Bearing Blower at its price on the market. It is smooth running, with the crank turning either direction to make the blast, and goes out with our recommendation as a first-class blower.

Blower can be furnished with Cast Iron Pedestal or with four steel legs or can be mounted on short pedestal for bench use as shown. CodeWeightFan

125 lbs.

100 lbs.

75 lbs.

Fabulonem

Fabustem

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1	2
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	C

No.40 Pedestal

40L Legs

40½ Bench

No. $40\frac{1}{2}$.

The No. 40 Champion Lancaster Gearing is large and accurately cut. All the higher speed gears are helical cut, insuring smooth easy running. The shafts are bushed permitting replacement if wear develops in any bearing at a nominal cost, without discarding the entire Blower. The high-speed shaft is equipped with case-hardened end-thrust ball

12"

12"

12"

bearing.

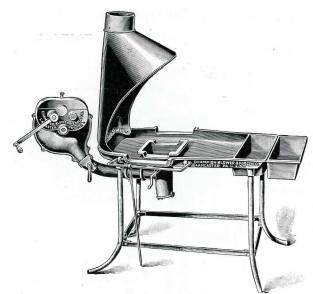












THE CHAMPION LANCASTER GEARED AGRICULTURAL FORGE

WITH SHIELD

Size of Hearth 23 x 35 Inches Fan 12 Inches in Diameter

No. 42 Champion Lancaster Geared Agricultural Forge is the same in its direct gearing for making blast as the No. 40 Lancaster Geared Blower, page 17. This makes a well-built, low-priced, direct-drive forge; a good blast producer and is recommended for farmers' use. It is well finished in every respect with a large size hearth and fan, and is a suitable Agricultural Forge where a direct-drive forge of these dimensions is required.

No.	Hearth	Fan	Height	Weight	Code
42	23 x 35"	12''	30′′	230 lbs.	Fabriker



THE CHAMPION LANCASTER GEARED BLACKSMITH FORGE

Size of Hearth 32 x 45 Inches

Fan 12 Inches in Diameter

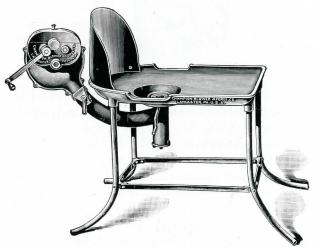
No. 41 Champion Lancaster Geared Blacksmith Forge is a well-built direct-drive Blacksmith Forge with Cast Iron Hearth which has been built to meet the demand for a cheaper

The Blower and Gearing used on this Forge is precisely the same as the No. 40 Blower shown on page 17.

The Tuyere Iron used on this Forge is a Heavy Nest Ball Tuyere Iron, weighing 50 lbs.

It therefore represents a complete, well-built Blacksmith Forge at a very reasonable price.

No.	Hearth	Fan	Height	Weight	Code
41	32 x 45"	12"	30′′	410 lbs.	Fabulo
With w	ater tank, extra				



THE CHAMPION LANCASTER GEARED AGRICULTURAL FORGE

WITH HALF HOOD

Size of Hearth 23 x 35 Inches Fan 12 Inches in Diameter

No. 43 Champion Lancaster Geared Direct-Drive Agricultural Forge is the same as No. 42, except that it has a half hood in place of a shield and is suitably adapted for indoor work.

No.	Hearth	Fan	Height	Weight	Code
43	23 x 35"	12''	30′′	235 lbs.	Fabrefacto
				100	





THE CHAMPION LANCASTER GEARED AGRICULTURAL FORGE

WITH SHIELD

Size of Hearth 22 Inches

Fan 10 Inches in Diameter

No. 45 Champion Lancaster Geared Agricultural Forge with shield is a suitable direct-drive forge for Farmers, Garage and general use where a well-built, cut-geared, low-priced, good blast producer is desired. The gearing for making blast is similar to the No. 40 Lancaster Geared Blower, page 17. It is a strong light forge for all kinds of portable work. It can be easily carried about and makes the best low-priced rivet forge ever manufactured for heating or preheating with coal or charcoal.

No.	Hearth	Fan	Weight	Code
45	22''	10''	145 lbs.	Fabaraz

THE CHAMPION LANCASTER GEARED AGRICULTURAL FORGE

WITH HALF HOOD

Size of Hearth 22 Inches

No. 46 Champion Lancaster Geared Agricultural Forge with half hood is the same in construction and finish as No. 45, except that it is supplied with half hood in place of shield, making it suitable for tools and incide work in garages and elsewhere

pering	toois and	mside work	in garages and	elsewhere.
No.	Hearth	Fan	Weight	Code
46	22''	10"	150 lbs.	. Fabisor





No. 48.

THE CHAMPION LANCASTER

Fan 10 Inches in Diameter Size of Hearth 18 Inches

No. 48 Champion Lancaster Geared Rivet Forge is a new steel forge added to our already complete line. This Steel Forge is supplied with the Lancaster Geared Blower used and shown on Forge No. 45, shown above, making it a very convenient, light and serviceable Rivet Forge at a moderate price.

For further particulars as to gearing and construction of this Blower, read description of No. 40 Blower and No. 45 Forge on page 17 and above.

No.	Hearth	Fan	Height	Weight	Code
48	18"	10''	30′′	130 lbs.	Fabo
48A	22''	10''	30′′	135 lbs.	Faboter
48B	24''	10''	30′′	140 lbs.	Fabotest
	If hood extra				

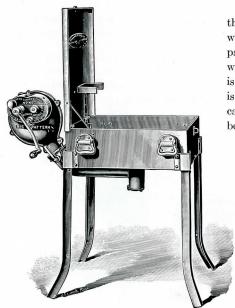




THE CHAMPION LANCASTER GEARED ARMY AND NAVY FOLDING FORGE

Size of Hearth 18 x 22 x 7 Inches

Fan 10 Inches in Diameter



No. 49 Champion Lancaster Geared Army and Navy Folding Forge is of the latest design, with the legs, tuyere pipe and blower head detachable, yet when assembled—rigidly attached in their proper position. When the loose parts are detached and packed in the case, they are firmly held in place, withstanding any amount of rough handling without breakage. This Forge is equipped with pressed steel handles to lift the forge about. The Gearing is the same as the No. 40 Lancaster Geared Blower, shown on page 17 of our catalogue, equipped with helical high-speed gearing, and bushings on all bearings, making it the best low-priced Folding Forge on the market.

No.	Hearth	Fan	Height	Weight	Code
49	18 x 22 x 7"	10''	28''	110 lbs.	Franker



THE CHAMPION LANCASTER GEARED RIVET FORGE

Size of Hearth 24 x 24 Inches

Fan 10 Inches in Diameter

No. $48\frac{1}{2}$ Champion Lancaster Geared Steel Rivet Forge has a square hearth formed from a single sheet of No. 10 gauge steel plate, with edges reinforced with $\frac{3}{4}$ -inch angle iron making it seamless—therefore, rust-proof and indestructible, with angle steel legs riveted to the hearth. The Blower is the same as the No. 40 Blower with a 10" fan case. It is a well-built, strong and substantial Forge, sold at a low price.

No. $48\frac{3}{4}$ is same as No. $48\frac{1}{2}$ only is supplied with a Half Hood.

No.	Hearth	Fan	Height	Weight	Code
481	24 x 24"	10''	30′′	185 lbs.	Fataca
483	24 x 24"	10''	30′′	190 lbs.	Fautor



No. $48\frac{1}{2}$.



THE CHAMPION LANCASTER GEARED BOILERMAKERS' AND MACHINISTS' FORGES



Size of Hearth 30 x 30 Inches Fan 10 Inches in Diameter

No. 44³ Champion Lancaster Geared Boilermakers' and Machinists' Forge has a square hearth formed from a single sheet of No. 10 gauge steel plate, with edges reinforced with ³ inch angle iron, making it absolutely seamless—therefore, rust-proof and indestructible. This Forge is supplied with the No. 40 Blower with 10-inch Fan Case, and Heavy Nest Tuyere Iron, making a first-class low-priced Forge.

No. $44\frac{1}{2}$ is same as No. $44\frac{3}{4}$ only is supplied with a Shield.

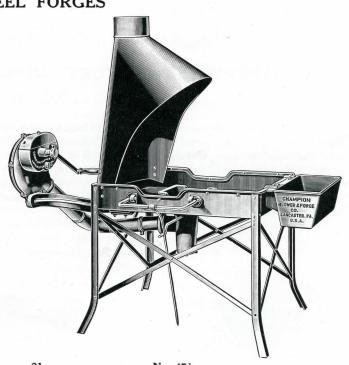
No.	Hearth	Fan	Height	Weight	Code
$44\frac{1}{2}$	30 x 30"	10''	30′′	215 lbs.	Fasern
$44\frac{3}{4}$	30 x 30"	10"	30′′	220 lbs.	Faseole
With wa	ter tank, extra				

THE CHAMPION LANCASTER GEARED BLACKSMITH STEEL FORGES

No. $47\frac{1}{2}$ Champion Lancaster Geared Blacksmith Steel Forges are large, substantially built Forges. Hearth is formed from a single sheet of No. 10 gauge steel plate, with edges reinforced with $\frac{3}{4}$ -inch angle iron, making it seamless—therefore, rust-proof and indestructible; with legs securely riveted and substantially braced to the hearth; with sides 6 inches deep.

The Blower is the No. 40 Blower with a Heavy Nest Tuyere Iron, making an excellent low-priced Blacksmith Forge.

No.	Hearth	Fan	Height	Weight	Code
471	30 x 36"	12"	30′′	305 lbs.	Fakir
$47\frac{3}{4}$	30 x 40"	12"	30′′	315 lbs.	Falhize
With wa	ter tank, extra	,			



21

No. $47\frac{1}{2}$.











THE CHAMPION EUREKA GEARED BLOWER NO. 140

The Champion Eureka Geared Blower is built to meet the demands of the small blacksmith and farmer, who desires a low-priced blower producing a blast sufficient for all needs.

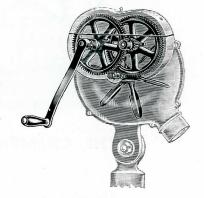
This blower is built with high-speed helical gearing, giving 48 revolutions of the blast wheel to one turn of the crank, and the gearing is enclosed in a dust-proof, oil-tight, rigid cast iron gear case. It is smooth running, with crank turning either direction to make the blast.

It is furnished with a Ball Tuyere Iron and pipe complete.

No.	Fan	Weight	Code
140	10''	70 lbs.	Gabuntaler

NO. 140 CHAMPION EUREKA GEARING SHOWN IN DETAIL

The No. 140 Champion Eureka Gearing is spur cut on the slow speed shaft and helical on the high speed gear and pinion, making it noiseless and easy running throughout with greater speed to the fan shaft per turn of the crank. The High Speed shaft runs on the ball thrust at the end of the shaft. All gears are set in a cast-iron, dust-proof gear case, insuring rigidity not found in any other style.



THE CHAMPION PROSPECTORS', MINERS' AND TOOL CHEST FORGE NO. 27

The Champion Prospectors', Miners' and Tool Chest Forge is a tool for Prospectors, Miners and for a Mechanic's tool chest. The object of this Forge is compactness, lightness of weight and convenience without sacrificing the satisfaction of a strictly first class blast. By referring to cut it will be seen the blower is run by direct gearing and the tuyere iron is connected to the blower by piping, making it a strong and substantial Forge. With the legs folded the blower and tuyere iron are in a straight line, making it easy and convenient to strap to a burro for Prospectors or for strapping in a tool chest.

The various cuts show how the Blower can be set up to a clay hearth under different conditions, making a most complete Forge.

No.	Fan	Weight	Code
27	8"	55 lbs.	Fabaray
21	•	33 103.	Labaray
- Instruction of the Contraction			20











WITH CAST IRON HEARTH

Size of Hearth 23 x 30 Inches

Fan 10 Inches in Diameter

No. 142 Champion Eureka Geared Forge is equipped with a Cut-Geared, Crank-Driven Blower, helical gearing being used to give smooth running and noiseless operation. The gear ratio gives 48 revolutions of the blast wheel to one turn of the crank, making a strong, steady, high-pressure blast with smooth easy turning—crank turning either direction. The gear case is cast iron, rigid, oil-tight and dust-proof.



No. 142.

This Forge, having a 23×30 -inch hearth, with a 10-inch fan, gives a larger fan and hearth than is usually found on forges of this character. The large size hearth makes it very desirable for Machinists, Garages, Farmers, etc., or any place where a good commodious forge is desired.

No. 143 Forge has Half Hood.

No.	Hearth	Fan	Height	Weight	Code
142	23 x 30"	10''	30"	140 lbs.	Gaber
143	23 x 30"	10''	30′′	142 lbs.	Gabest

THE CHAMPION EUREKA GEARED FORGES

WITH CAST IRON HEARTH

Size of Hearth 20 x 26 Inches

Diameter of Fan 10 Inches





No. 143.

An ideal farm forge for general use, large enough for plowshare work. Burns coal, coke or charcoal. The hearth is heavy cast iron, insuring durability as it will not rust out. Forge hearth is 30 inches high with well-braced legs and the Blower has 10-inch fan case. Speeded 48 to 1, that is, each turn of the crank produces 48 turns of fan, giving operator blast equal to a power blower with moderate turning. Gears are set in oil-tight, dust-proof, rigid cast iron gear case, insuring perfect alignment of gears, eliminating noise and short life, as all gears are accurately cut, and lay in a bath of oil. Crank turns either direction. Ball End Thrust Bearings on high-speed shaft makes turning easy and insures durability.

This Forge will put a welding heat on 4-inch iron in ten minutes.

No. 242 Forge with shield for outdoor use.

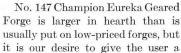
No. 243 Forge with half-hood, as illustrated for indoor use, 9-inch stove pipe will fit hood.

No.	Hearth	Fan	Height	Weight	Code
242	20 x 26"	10"	30"	115 lbs.	Gameor
243	20 x 26"	10"	30"	120 lbs.	Gamanate



WITH CAST IRON HEARTH

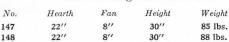
Size of Hearth 22 Inches

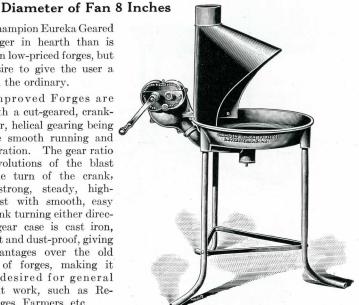


forge beyond the ordinary.

These Improved Forges are equipped with a cut-geared, crankdriven blower, helical gearing being used to give smooth running and noiseless operation. The gear ratio gives 48 revolutions of the blast wheel to one turn of the crank, making a strong, steady, highpressure blast with smooth, easy turning—crank turning either direction. The gear case is cast iron, rigid, oil-tight and dust-proof, giving modern advantages over the old lever types of forges, making it especially desired for general medium light work, such as Repairers, Garages, Farmers, etc.







No. 148.

CodeGaten Gatat

THE CHAMPION EUREKA GEARED FORGES

WITH CAST IRON HEARTH

Size of Hearth 18 Inches

No. 147.

Diameter of Fan 8 Inches

No. 145 Champion Eureka Geared Agricultural Forge is equipped with a cut-geared, crank-driven blower, helical gearing being used to give smooth running and noiseless operation. The gear ratio gives 48 revolutions of the blast wheel to one turn of the crank, making a strong, steady, highpressure blast with smooth, easy turning—crank turning either direction. The gear case is cast iron, rigid, oil-tight and dust-proof, giving modern advantages over the old lever and wheel type of forge, making them very satisfactory forges for general light and medium repair work, such as Garages, Farmers or any place where a light portable forge is desired.

No. 146 Forge has Half Hood.

No.	Hearth	Fan	Unight	Weight	Code
145	18''	8''	Height 30''	72 lbs.	Game
146	18"	8"	30"	75 lbs.	Gaman



No. 146.



No. 145.





WITH PRESSED STEEL HEARTH

Size of Hearth 24 Inches

Diameter of Fan 8 Inches



No. 147-S Champion Eureka Geared Forge is a well-made, roomy, low-priced Forge for garage, machine shop, ranch or farm trade for general use. Hearth is 24 inches in diameter, therefore, more roomy than the average forge. Burns coke, coal or charcoal. It is equipped with a cut-geared, crank-driven Blower-helical gears being used to give smooth running and noiseless operation. All gears run in a dustproof, oil-tight gear case, which is cast ironlining the gears up true as there is no give like a steel gear case. Has double bearing supports to each end of the shaft and the high-speed shaft is equipped with ball end thrust bearing eliminating friction. Hearth is pressed steel—made of heavy gauge. Forge legs are bolted to heavy leg sockets and braced at bottom, making the best all around low-priced Forge on the market.

No. 148-S Forge is furnished with Half Hood for indoor use.

Weight CodeNo.HearthFanHeight 24" 30" 55 lbs. Gatenly 147S 24" 30" 60 lbs. Gatatly 1485



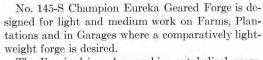
No. 148-S Forge

THE CHAMPION EUREKA GEARED FORGES

WITH PRESSED STEEL HEARTH

Size of Hearth 18 Inches

Diameter of Fan 8 Inches



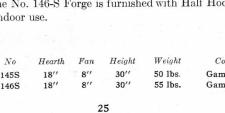
The Fan is driven by machine-cut helical gears, running smooth and noiseless in a dust-proof, oiltight gear case which is cast iron, insuring rigidity not found in pressed steel gear cases.

The Hearth is steel, pressed from a heavy gauge single sheet, making a light-weight, low-priced, rigid forge for general agricultural use.

The Legs are bolted to the hearth with heavy steel leg sockets and are strongly braced.

The No. 146-S Forge is furnished with Half Hood for indoor use.

Hearth	Fan	Height	Weight	Code
18''	8''	30′′	50 lbs.	Gamely
18''	8"	30′′	55 lbs.	Gamonl
	18''	18" 8"	18" 8" 30"	18" 8" 30" 50 lbs.





No. 145-S Forge







No. 146-S Forge





WITH CAST IRON HEARTH

Size of Hearth 23 x 30 Inches

Fan 10 Inches in Diameter



No. 133 Forge with Half Hood for indoor work is a good light-weight, mediumsized forge for garage work, such as welding iron, preheating, melting babbitt, etc.

The Gears are cut and lay in a bath of oil, in an oil-tight, dust-proof gear case.

Crank turns either direction to produce blast, and these Forges are silent running and durable; and will do all the forge work the average garage ever gets.

This Forge is supplied with Ball Tuyere Iron, which is set deep, so a large fire can be produced in the pan, which is roomy and made to take bar work, so axles can be straightened or welded when necessary.

No. 132 is the same as No. 133 with Shield.

No.	Hearth	Fan	Height	Weight	Code
133	23 x 30"	10''	30"	135 lbs.	Frent
132	23 x 30"	10"	30′′	130 lbs.	Frenas

No. 133.

THE CHAMPION EUREKA GEARED FORGES

WITH PRESSED STEEL HEARTH

Size of Hearth 15 x 19 Inches

Fan 7 Inches in Diameter

No. 135 Forge has been designed for light and medium repair work in garages, farms and plantations.

This Forge will be found very convenient for doing light work. The fan is driven by direct-drive, machine-cut gears; therefore, will give a good strong steady blast.

This Forge is superior to the light agricultural forges of the lever or cog wheel type. The legs are bolted to the hearth and strongly braced.

No. 136 is same as No. 135 with Half Hood.

No.	Hearth	Fan	Height	Weight	Code
135	15 x 19"	7''	30′′	50 lbs.	Fratis
136	15 x 19"	7''	30′′	55 lbs.	Fratac



No. 135.

THE CHAMPION EUREKA GEARED BENCH FORGES

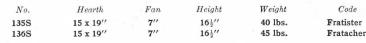
WITH PRESSED STEEL HEARTH

Size of Hearth 15 x 19 Inches

Diameter of Fan 7 Inches

No. 135-S Forge is similar in size to the No. 135 Forge, but has short legs, intended so when used it can be set on a box or bench, proving an extremely convenient Forge for prospectors.

No. 136-S is same as No. 135-S with Half Hood.



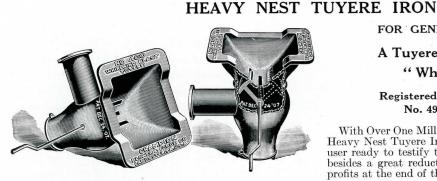








NO. 400 CHAMPION "WHIRLWIND" BLAST ANTI-CLINKER



FOR GENERAL BLACKSMITHS

A Tuyere Iron that makes a "Whirlwind" Blast

Registered in U. S. Patent Office, No. 49,691, Feb. 13, 1906.

With Over One Million "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Irons sold in fifteen years, with every user ready to testify that it heats Iron one-third quicker, besides a great reduction in Coal Bills when figuring up profits at the end of the year's work, Explains Why:—

The "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron is:—A Tuyere Iron true to its name; A Tuyere Iron that produces a circular, rotary blast; A Tuyere Iron that will not blow the heat or hot air up and out of the chimney; A Tuyere Iron from which less blast is wasted 6 inches above the Tuyere than 4 feet above any other Tuyere Iron; A Tuyere Iron that concentrates the blast and heat in the Tuyere Nest, thus makes a hotter fire and heats one-third quicker.

Don't delay installing the "Whirlwind" Blast in your fires as it saves at least one-half the heating elements of your coal pile from going up the chimney in waste.

The "Whirlwind" is no secret. We invite comparison. Hold your hand over the top of the "Whirlwind" Blast Tuyere when the blower is in blast and do the same with any other Tuyere Iron and you will immediately discover that less blast is lost 6 inches above the "Whirlwind" Blast Tuyere than 4 feet above any other Tuyere. It will pay to take the time to look this up.

The "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron is supplied with a revolving pick to remove the clinkers out of the side slots, therefore, the slots can always be kept open without disturbing the fire from the top, assuring you at all times a full capacity of blast and guaranteeing a clean powerful fire.

No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron is 5 inches deep, $8\frac{3}{4}$ inches wide and $10\frac{1}{2}$ inches long, over all $12\frac{3}{3} \times 14\frac{3}{4}$ inches, Weight 55 lbs. Code—Fabulonis.

THE CHAMPION HEAVY NEST TUYERE IRONS

No. 4 Champion Heavy Nest Tuyere Iron is intended for large fires of all kinds. It is also very desirable for Horseshoers. It requires no claying up. Its walls are heavy enough to withstand the hottest fires. Size of nest $3\frac{1}{4}$ inches deep at lowest curve point. Sides are $5\frac{3}{4}$ inches high. Length of nest 12 inches, with a width of 10 inches over the top.

Vo.	$\begin{array}{c} Over \ All \\ Dimension \end{array}$	$\begin{array}{c} Inside \\ Depth \end{array}$	Weight	Code
4	143 x 131"	51"	70 lbs.	Fragent





No. 4.

NEW CHAMPION BALL TUYERE







CHAMPION PATENT

ADJUSTABLE

No. 400B Champion Heavy Nest Ball Tuyere Iron is furnished with a center blast heavy nest, ball and rod. This is strictly a first-class Tuyere Iron and will give satisfaction wherever used.

No.	$\begin{array}{c} Over \ All \\ Dimension \end{array}$	$_{Depth}^{Inside}$	Weight	Code
400-B	11½ x 14"	4''	50 lbs.	Fragelle



THE CHAMPION IMPERIAL BLACKSMITH LEVER FORGE



The No. 81 Champion Imperial Lever Blacksmith Forge has been designed to meet the demands of a cheap lever forge. The Imperial Lever Motion is a very simple device. It is a self-acting automatic clutch with no springs to get out of order and without pawls or ratchet dogs to become lost or worn out; therefore, can recommend it for durability, simplicity and easy running. The hearth of this forge is made large and commodious. The fan has a direct blast into the fire and will produce a large and steady blast for all kinds of blacksmith work.

No.	Hearth	Fan	Height	Weight	Code
81	32 x 45"	$14\frac{1}{2}^{\prime\prime}$	30"	350 lbs.	Fairy
With v	vater tank, extra	a			•

THE CHAMPION IMPERIAL AGRICULTURAL LEVER FORGES

Nos. 82 and 83 Champion Imperial Lever Forges are large in hearth and fan; suitably adapted for agricultural and garage service. The lever is of the automatic clutch type; simple, efficient and durable. No springs or ratchets to get out of order or become lost, and we recommend them for those seeking a low-priced, well-constructed lever forge.

No. 82 Forge is furnished with a Shield, No. 83 Forge with a Half Hood.

No.	Hearth	Fan	Height	Weight	Code
82	23 x 35"	121"	30"	195 lbs.	Fatness
83	23 x 35"	121"	30′′	200 lbs.	Favorable



No. 83. With Half Hood.



No. 85. With Shield.

THE CHAMPION IMPERIAL LEVER RIVET FORGES

Nos. 85 and 86 Champion Imperial Lever Rivet and Toolmakers' Forges are designed to meet the demands for a low-priced lever forge. The lever motion on these forges is the same as used on the other Imperial Forges and equipped with an automatic clutch, without springs or ratchet dogs to become out of order and lost. They are strong and light forges for all kinds of portable work, such as jewelers, bicycle repairers, tank builders, miners, railroads, farmers, garages, etc.

No. 85 Forge is furnished with a Shield, No. 86 Forge with a Half Hood.

No.	Hearth	Fan	Height	Weight	Code
85	22"	91"	33''	130 lbs.	Fastidious
86	22''	9½"	33''	135 lbs.	Fahrenheit



THE CHAMPION AGRICULTURAL LEVER AND CRANK FORGES



No. 100. With Shield.



No. 150. With Shield.



No. 152. With Shield.

The Champion Agricultural Lever and Crank Forges are built to operate by lever motion in two sizes and four styles and by crank motion in one size and two styles. They meet the demand of a cheap forge for farmers' use and then only for light work. They are well built, and are intended to be used where light odd jobs only are to be done. The clutch lever motion used on these forges is durable and not liable to get out of order.

No.	Hearth	Fan	Height	. $Weight$	Code
100	22"	9''	30′′	100 lbs.	Faro
101	22''	9"	30′′	105 lbs.	Farago
150	18''	8''	30′′	85 lbs.	Farrow
151	18"	8''	30′′	90 lbs.	Farther
152	18"	8''	30′′	80 lbs.	Fastolf
153	18"	8''	30′′	85 lbs.	Fashioner



No. 101. With Half Hood.



No. 151. With Half Hood.



No. 153. With Half Hood.



THE CHAMPION LANCASTER RATCHET LEVER FORGES

No. 61. With Half Hood.

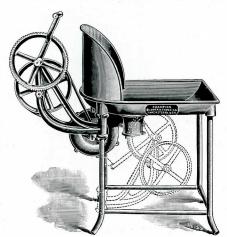
No. 59. With Half Hood.

No. 55. With Shield.

Lancaster Ratchet Lever Forges are made with double ratchets, strong and substantial, and adapted for all kinds of general work.

No	Hearth	Fan	Height	Weight	Code
61 with Half Hood	28 x 40"	14''	30''	360 lbs.	Faidit
With water tank, ext	ra				
58 with Shield	21 x 27"	10"	29"	185 lbs.	Faillance
59 with Half Hood	21 x 27"	10"	29"	190 lbs.	Faillant
60 with Full Hood	21 x 27"	10"	29"	200 lbs.	Faillible
55 with Shield	18''	8''	30''	100 lbs.	Failliet
56 with Half Hood	18"	8''	30"	105 lbs.	Faina
57 with Full Hood	18"	8"	30"	115 lbs.	Faiscar

THE CHAMPION BOILERMAKERS' AND TOOLMAKERS' CRANK FORGES



No. 15. With Shield.

No. 15 Champion Boilermakers' Crank Forge is designed for Boilermakers', Iron, Ship and Bridge Builders', Railroad Contractors', Miners' and Tank Builders' use.

No. 18 Champion Portable Rivet Crank Forge with Shield is a strong blast producer and is adapted for Tank Builders, Elevated Railroad Builders, Miners and Prospectors, for making repairs on Boilers, Bridges, etc.

The principle of turning the arm and gearing underneath the pan, as shown by dotted lines, is very convenient for transportation. The crank turns either way to produce the blast. This is a strictly first-class line of Forges and strong blast producers.

No.	Hearth	Fan	Height	Weight	
15 with Shield	22 x 28"	10"	30"	170 lbs.	
16 with Half Hood	22 x 28"	10"	30′′	175 lbs.	
17 with Full Hood	22 x 28"	10"	30′′	190 lbs.	
18 with Shield	18''	9"	33"	100 lbs.	
19 with Half Hood	18''	9"	33''	105 lbs.	
20 with Full Hood	18''	9"	33''	115 lbs.	

Code
Fancy
Fanciful
Fane
Fascinate
Fast
Fashion

No. 18. With Shield.



30



THE CHAMPION COMBINATION REPAIR OUTFIT NO. 30

Forge, Vise, Anvil, Pipe Vise, Drill Machine, Emery Grinder

The CHAMPION Combination Repair Outfit, equipped with Forge, Vise, Anvil, Pipe Vise, Drill Press and Emery Grinder, is a high grade combination tool built for service.

The gears are all cut. The forge pan is 12" x 14", large enough to take a plow-share. The Blower-gearing is a cut-gear outfit that runs silent and is speeded to produce a white heat so that

Blower-gearing is a cut-gear outfit that runs silent and is speeded to produce a white heat so that welding can be done.

This blower-gearing is detachable from the forge and can be mounted in front on the vise. In this way the same gears are engaged as a grinder and drill press. This grinder has three distinct speeds for light, medium and heavy cutting.

The emery wheel is screwed on the stud between the vise jaws attached to the high speed gear on this gear box and two substantial bearings—one on each side of the vise jaws—support this wheel, making it a rigid, durable grinder.

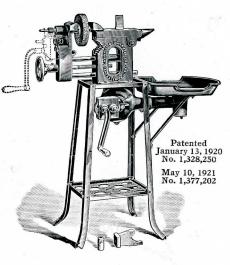
The vise on this combination tool is well made; the jaws for the pipe vise are chilled. The screw is accurately cut and two heavy shafts support the vise so that the jaws meet perfectly.

To convert this machine into a drilling machine, the emery wheel is screwed off the shaft and the anvil top placed at a 90° angle acts as a drill back. The drill bit is inserted in the socket, which takes ½" shank bits. If specially ordered will be bored ¼-in. shank bits, and three distinct speeds for wood, iron, light, medium and heavy work. The three speeds on the drill make a practical, smooth-running drill, the gears all being cut, whereas other outfits have cast gears on the drill attachment with one speed only. The pipe vise operates without any change. No parts are removed or lost and this machine takes pipe up to two inches.

The legs are angle steel, well riveted to the top plate and tool tray, and the two steel rods support the forge pan.

support the forge pan.

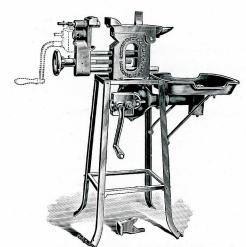
This is the most practical repair outfit on the market, furnished complete with one 6 x 1" emery wheel, and one Hardie, as illustrated.



DETAILED DIMENSIONS

Height over all	inches	Greatest distance Spindle to Table 11 in	ncl
Height to top of Forge Hearth 26	"	Spindle bored to take	66
Width of Vise Jaws 4	"	Spindle bored to take $\frac{1}{2}$ Face of Anvil $3x5\frac{3}{4}$	"
Extreme opening of Vise Jaws 4½	"	Size of Hardie	"
Capacity of Pipe Vise 2	"	Size of Forge Hearth	
Capacity of Drill Press ½	"		"

Speeds obtained by gearing 1 to 1
1 to 4, 1 to 22
Size of Emery Wheel 6x1 inches
Floor Space
Weight Crated
Code—Six-in-One



THE CHAMPION COMBINATION REPAIR OUTFIT NO. 31

Forge, Vise, Anvil, Pipe Vise, Drilling Machine

The No. 31 Champion Combination Repair Outfit is indispensable to the farmer, ranch, plantation, home garage, or any light repair shop. Many homes use this tool, for it is convenient for any repair work.

The Frame is angle steel, well riveted to top plate and tool tray, making it stiff, strong

and substantial.

The train of gearing operating the blower is machine-cut and is fitted in jig-made case, assuring proper alignment of gears, thereby reducing wear and tear and less noise. This blower produces a good, strong, steady blast.

The Drill is a practical three-speed drill, having cut gears, which makes a silent, smooth running drill. The socket or chuck for holding the drill bit is steel and takes ½-inch shank. If specially ordered, chuck will be bored to take ½-inch shank.

DETAILED DIMENSIONS

Height over all 41	inc
Height to top of Forge Hearth 26	4
Width of Vise Jaws 4	
Extreme opening of Vise Taws. 41	
Capacity of Pipe Vise	
Capacity of Drill Press	4
Greatest distance Spindle to	
Table	6
Spindle bored to take $\dots \frac{1}{2}$	"

Face of Anvil
Size of Hardie 5 "
Size of Forge Hearth 12x14 "
Depth of Forge Hearth 2 "
Speeds obtained by gearing 1 to 1
1 to 4, 1 to 22
Floor Space
Weight Crated 125 pounds
Code-Fine-in-One

THE CHAMPION REPAIRER NO. 32

Built to do Practical Work

It is strong and substantial when securely lagged to a bench, and consists of the following useful tools such as used daily by the Farmer, Ranchman, Home Garage, or any light repair work.

The Drill is a practical three-speed drill, having cut gears, which makes a silent, smooth running Drill. The socket or chuck for holding the drill bit is steel and takes ½" shank. If specially ordered, the chuck will be bored to take ½" shank.

The Anvil has face 3 inches x 5½ inches, with cutting hardie.

The Emery Wheel—operated by cut gears which runs smooth, easy and noiseless, giving high speed to Emery Wheel for sharp quick cutting.

The Vise—equal to an individual Vise. Jaws 4 inches wide opening 4½ inches.

The Pipe Vise has a capacity for 2-inch pipe.

DETAILED DIMENSIONS

Height over all. Width of Vise Jaws. Extreme opening of Vise Jaws. Canacity of Pine Vise	4 4½	"	Capacity of Drill Spindle bored to Face of Anvil
Capacity of Pipe Vise	2	"	Size of Hardie

Capacity of Drill Press 1	inches
Spindle bored to take	"
Face of Anvil3x5	"
Size of Hardie	"

Speeds obtained by gearing 1	to 1
1 to 4, 1 Weight Crated	to 14
Code— $Four-in$ - One	•





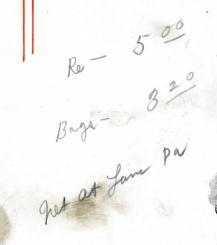


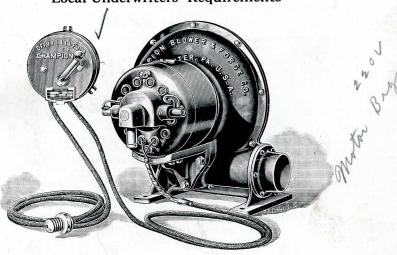


THE CHAMPION VARIABLE SPEED ELECTRIC PRESSURE BLOWER

THE ORIGINAL VARIABLE SPEED ELECTRIC BLOWER

With totally enclosed regulator to comply with all National and Local Underwriters' Requirements





The Blowers with the BIG MOTOR have

Universal Motor for Both Alternating and Direct Current. Pressure from over 2,000 Revolutions Per Minute. Detached Totally Enclosed Regulator with Six Speeds, 10-foot attachment cord and plug to attach to any light socket

Champion Variable Speed Electric Blowers are especially built for blowing forge fires, furnaces, organs, and any other work requiring efficient blast.

These Blowers have the fan-case designed the same as our Steel Pressure Blowers, made by us for over forty-five years and with snail-shape fan-case are built for high-pressure blast and durability.

The motor has silk-covered wire of the best insulation, is built with hammered steel shaft, phosphor bronze bearings, self-aligning commutator with twenty-four bars of hard drawn copper, and large flat brushes which are staggered so that one brush does not track after the other on the commutator, insuring thereby double wearing life to the commutator.

With over 300,000 Champion Electric Blowers sold has given us valuable experience, which we are glad to extend to our customers.

- 1st. The great failure in motor building is in overrating capacity, not allowing anything for endurance.
- 2d. The CHAMPION uses all modern methods of electrical design, and furnishes a motor fully 40% above requirements in power capacity, therefore giving GIANT POWER, thus insuring full capacity and endurance.
- 3d. All Champion MOTORS are DESIGNED and BUILT with sufficient units of power guaranteed to run the Blower at highest speed of over 2000 revolutions per minute, and at high pressure open and away from the fire for ten hours without a single stop.
- 4th. All Champion Motors are built from the very highest grade of materials, best workmanship, and machinery of the latest up-to-date designs employed in winding and manufacturing the motor.

 No. 50.
 No. 51. √

 For Regular Fire.
 For Extra Heavy Fire.

 Variable Speed Universal 110V or 220V Motor.

 Weight
 60 lbs.
 70 lbs.

 R.P.M.
 800 to 2050
 850 to 2475

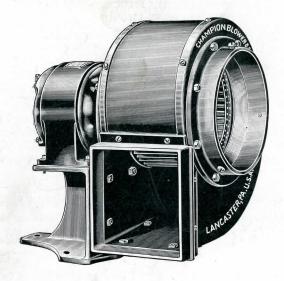
 Outlet
 3"
 3"

 Height
 15"
 15"

 Code
 Faces
 Faceor



THE CHAMPION CONSTANT SPEED ELECTRIC DRIVEN MANIVANE STEEL PLATE FANS



The Champion Constant Speed Electric Manivane Steel Plate Fans are built to give large volume of air at a low pressure with moderate speed. Operating noiseless, they are particularly serviceable where noise is objectionable, such as producing forced draft in household furnaces and apartment houses where fine coal and oil are used as fuel; they are also especially adapted for ventilating homes, offices, restaurants and moving picture booths; meeting all safety laws as to proper ventilation for moving picture booths throughout all States. For underground work where men must go in tunnels or manholes, these fans are indispensable in furnishing a large volume of fresh air to the workmen.

These Fans are light in weight, easy to move from place to place without breakage. The fan cases are adjustable to eight different discharge positions. Furnished in one height, with three widths of fan cases, producing three different capacities.

Directions For Ordering These Fans:

- 1. Advise if current is Direct, or Alternating.
- 2. If direct, it is necessary to advise the voltage only.
- 3. If alternating, advise cycles, phase and voltage.
- 4. 60 cycles furnished regularly.
- 5. Both currents can be furnished regularly for either 110 or 220 volts.
- 6. Other cycles and voltages are special and require correspondence.

No.	Height	Outlet	H.P.	R.P.M.	Weight	Code
10	151"	6 x 2"	1^{1} 2	1725	70 lbs.	Abeam
11	151"	6 x 4"	16	1725	75 lbs.	Abedul
12	151"	6 x 6"	1	1725	80 lbs.	Abegoa

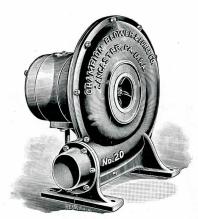






THE CHAMPION DIRECT-CONNECTED ELECTRIC BLOWER

No. 20. For One to Two Fires



No. 20 Champion Direct-Connected Constant Speed Electric Blower is highly recommended to those looking for a constant speed blower for one to two fires.

The motor is our own design, and built with at least 40% more units of power than are called on for making blast for two fires. The shaft and bearings are long and heavy. The material and workmanship is of the highest grade, making it a durable machine.

The Fan Case is our steel pressure design, giving high pressure and sufficient blast to operate two fires satisfactorily.

Each forge must have a blast gate and the blower will work equally as well for one or two fires, but the best results are obtained when the blower is set close to the fires, with the piping as short as possible.

This Blower is supplied with a Knife Switch for starting and stopping

Directions for Ordering the No. 20 and No. 21 Constant Speed Electric Blower

1st —Find if the current is direct or alternating.

2d —If direct, find the voltage only.

3d —If alternating, find cycles, phase and voltage. 4th—60 cycles furnished regularly.

5th—Both currents can be furnished regularly for either 110 or 220 volts.

6th—Other cycles or voltages are special.

No.	Height	Outlet	R.P.M.	Weight	Code
20	15''	31"	3500	65 lbs.	Facar
21	15"	31"	1750	65 lbs.	Facarer

THE CHAMPION DIRECT-CONNECTED ELECTRIC BLOWER

No. 2. For One to Four Fires

No. 2 Champion Direct-Connected Constant Speed Electric Blower is sold with our recommendation to all users looking for a constant speed blower for one to four fires. The motor is of our own design, of a high speed type, with at least forty per cent. more units of power than are called on for making blast for four fires. The shaft and bearings are equally large in proportion, in connection with the highest grade materials and best workmanship, making the outfit as durable as it can be manufactured. The Blower is of the Steel Pressure pattern, giving the benefit of high pressure. We have no hesitancy in guaranteeing this Blower to have sufficient blast for four fires; however, with the use of blast gates (one of which must be used at each fire) the blast can readily be brought down for one or two fires. The extra size motor also makes this Blower a great saver of electricity. The best results are obtained when the Blower is close to the fire and elbows or especially short turns are avoided. This Blower is furnished complete with knife switch where required.



Directions for Ordering the No. 2 Constant Speed Electric Blower

1st —Find if the current is direct or alternating.

2d —If direct, find the voltage only.

3d —If alternating, find cycles, phase and voltage.

4th—60 cycles furnished regularly.

5th—Both currents can be furnished regularly for either 110 or 220 volts.

6th—Other cycles and voltages are special.

No. Height Outlet R.P.M.Weight Code 15" 3-5/8" 3500 95 lbs. Factat







THE CHAMPION DIRECT-CONNECTED ELECTRIC BLOWER

No. 3. For One to Six Fires



No. 3 Champion Direct-Connected Constant Speed Electric Blower is one recommended to those looking for a constant speed blower for one to six fires.

The motor is our own design and built with at least 40 per cent. more units of power than are called on for making blast for six fires. The shaft and bearings are long and heavy. The material and workmanship are of the highest grade, making it a durable machine.

The Fan Case is our steel pressure design, giving high pressure and sufficient blast to operate six fires satisfactorily.

Each forge must have a blast gate and the blower will work equally well for one or six fires, but the best results are obtained when the blower is set close to the fires with the piping as short as possible.

This Blower is supplied with a knife switch for starting and stopping the motor.

Directions for Ordering the No. 3 Constant Speed Electric Blower

1st —Find if the current is direct or alternating.

2d —If direct, find the voltage only.

3d —If alternating, find cycles, phase and voltage.

4th—60 cycles furnished regularly.

5th—Both currents can be furnished regularly for either 110 or 220 volts.

6th—Other cycles or voltages are special.

No.HeightOutlet R.P.M.Weight Code 3500 185 lbs. 3 20" 4-7/8" Fact

THE CHAMPION DIRECT-CONNECTED ELECTRIC BLOWER

No. 4. For One to Nine Fires

No. 4 Champion Direct-Connected Constant Speed Electric Blower is furnished with a motor, specially designed for this Company, and has at least forty per cent. more power capacity than is customary in usual goods of this kind. The motor shafts and bearings are also of equally large dimensions. The increased size of the motor not only does its work with greater ease but saves at least ten per cent. in cost of electric current. The best results are obtained when the Blower is close to the fire and elbows or especially short turns are avoided. This Electric Blower is furnished complete with knife switch where required.



Directions for Ordering the No. 4 Constant Speed Electric Blower

1st —Find if the current is direct or alternating.

2d —If direct, find the voltage only.

3d —If alternating, find cycles, phase and voltage. 4th—60 cycles furnished regularly.

5th—Both currents can be furnished regularly for either 110 or 220 volts.

6th—Other cycles and voltages are special.

R.P.M.WeightCodeHeightOutlet No.25½" 7-7/8" 1750 285 lbs. Factionary







CHAMPION ELECTRIC STEEL RIVET FORGE NO. 459



No. 459 Champion Electric Steel Rivet Forge is built for the Rivet and Shipbuilding Trade. The Motor is carefully protected from the weather, enabling this Forge to remain on shipways in the open without the motor or starting rheostat sustaining any damage. The Blower is directly connected to the Tuyere Iron and is equipped with a Six Speed Variable Speed Regulator, manipulated by handle attachment as shown in a convenient place. The Hearth is exceptionally deep, permitting heating a large quantity of rivets at one time, and the entire Forge is built large and strong to withstand the hardest kind of usage such as a rivet and shipbuilding forge sustains.

In ordering give voltage only.

No.	Hearth	Height	Weight	Code
459	18''	30′′	120 lbs.	Frost

CHAMPION ELECTRIC STEEL RIVET FORGE NO. 452

No. 452 Champion Electric Driven Steel Forge is a square steel plate Forge similar to the No. 404, on page 6, with the Champion No. 50 Variable Speed Electric Blower, as shown on page 32, making a large rivet forge for general work of a contractor.

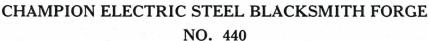
No.	Hearth	Height	Weight	Code
452	24 x 24"	30′′	285 lbs.	Fadest
454	30 x 30"	30''	295 lbs.	Fadeless
With w	ater tank, extr	a		

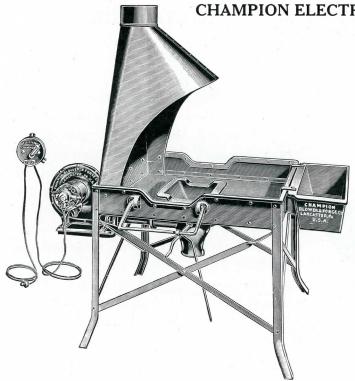












The No. 440 Champion Electric Driven Steel Forge represents a large steel plate forge, with perpendicular sides 6 inches high, similar to that used on the No. 408 forge, page 8, with the Champion No. 50 One-Fire Variable Speed Electric Blower as shown on page 32, making it a very complete and up-to-date electrical outfit for those desiring a spacious, high-grade steelhearth forge; materially reducing the cost of a built-up brick hearth, to which an electric blower would have to be attached.

In ordering give voltage only.

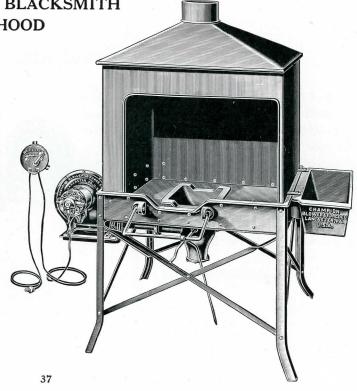
No.	Hearth	Height	Weight	Code
440	30 x 36"	30′′	310 lbs.	Facture
449	30 x 40"	30′′	325 lbs.	Facturater
453	24 x 24"	30"	290 lbs.	Facturatest
455	30 x 30"	30"	300 lbs.	Facturabus
With w	vater tank, extr	a		

CHAMPION ELECTRIC STEEL BLACKSMITH FORGE WITH FULL HOOD

NO. 448

No. 448 Champion Electric Blacksmith Steel Forge represents the No. 440 Electric Driven Forge shown above with a full hood, which is convenient where shops wish to concentrate the smoke of the fire and have it go out the chimney and for use particularly in combustible places, especially in large cities.

No.	Hearth	Height	Weight	Code
448	30 x 36"	30′′	370 lbs.	Famuter
448A	30 x 40"	30"	390 lbs.	Famutes
With wa	ter tank, extra			



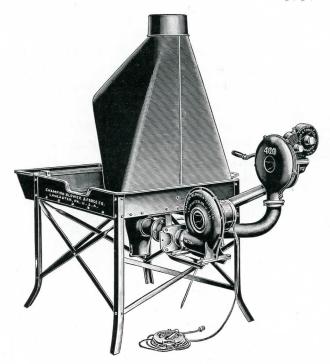






CHAMPION COMBINATION HAND AND ELECTRIC STEEL BLACKSMITH FORGE

NO. 445



No. 445 Champion Combination Hand and Electric Steel Forge is in size the same as the No. 440 Electric Driven Forge, page 37, in combination with the No. 50 Champion One-Fire Variable Speed Electric Blower, shown and described on page 32, and the Famous No. 400 Champion Steel Blower, making a very complete and practical outfit with combination electric and hand power Blower. This combination is particularly suitable in case the electric power is for some reason not at hand, when the Forge need not remain idle, but can be operated by means of the hand Blower, the blast being controlled by a system of Blast Gates.

In ordering give voltage only.

No.	Hearth	Height	Weight	Code
445	30 x 36"	30′′	400 lbs.	Favoritism
With wa	ater tank, extra			

CHAMPION ELECTRIC ROUND STEEL FORGES

The Champion Electric Round Steel Forges are built of heavy steel plate with structural iron, attached to which is the No. 50 One-Fire Variable Speed Electric Blacksmith Blower, shown on page 32, and recommended for Railway Shops or any place where extra heavy work is desired. These Forges are all equipped with the "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron, and are guaranteed to do the heaviest class of work expected.

No.	Hearth	Height	Weight	Code
446	36"	30′′	385 lbs.	Gamo
447	45''	30′′	455 lbs.	Gad
With wa	iter tank, extra			



No. 446.







CHAMPION ELECTRIC CAST IRON MACHINISTS' FORGE NO. 443



No. 443 Champion Electric Driven Cast Iron Machinists' Forge represents a medium size Hearth Forge with Ball Tuyere Iron, with the No. 50 Champion One-Fire Variable Speed Electric Blower, shown and described on page 32, which makes a particularly good forge for garage use in heating and tempering.

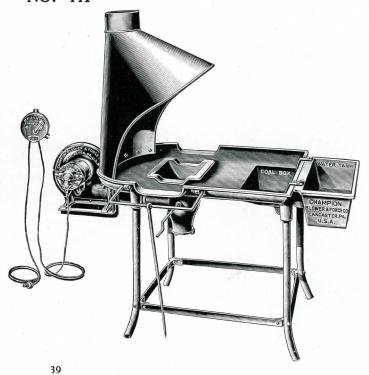
In ordering give voltage only.

No.HearthHeight Weight Code443 23 x 35" 30" 250 lbs. **Fusames**

CHAMPION ELECTRIC CAST IRON BLACKSMITH FORGE NO. 441

No. 441 Champion Electric Driven Cast Iron Forge represents a large hearth Forge with "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron and Champion Patented Sloped Bottom Coal Box, with the No. 50 Champion One-Fire Variable Speed Electric Blower, as shown and described on page 32 attached, as shown above, making a very complete and practical Electric Blacksmith Outfit for those desiring a roomy heavy cast iron forge.

No.	Hearth	Height	Weight	Code
441	32 x 45"	30′′	400 lbs.	Factavim
4411	28 x 40"	30"	300 lbs.	Facturant
With w	ater tank ovt	· a		





CHAMPION ELECTRIC EXTRA HEAVY CAST IRON FORGE NO. 442

No. 442 Champion Electric-Driven Extra Heavy Cast Iron Forge is the largest in blast, size and weight of any Electric Blacksmith Forge built. The size of the hearth is $38 \times 42 \times 7$ inches deep, making it a Forge equal in firmness and size to any stationary brick forge that can be built. This Forge is supplied with the "Whirlwind" Blast Anti-

Clinker Heavy Nest Tuyere Iron and Coal Box, with the No. 51 Champion Variable Speed Electric Blower attached, shown and described on page 32, and in every respect built for extra heavy work.

We recommend it for any railroad shop or any place where extra heavy work is expected.

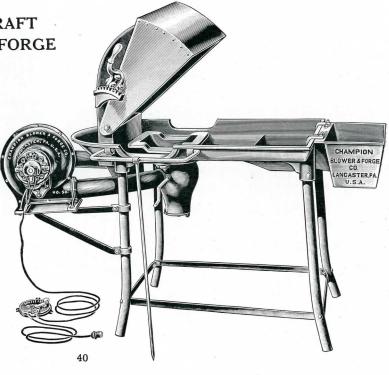
In ordering give voltage only.

No.	Hearth	Blower	Height	Weight	Code
442	38 x 42 x 7"	51	26''	530 lbs.	Fustolina
442A	38 x 42 x 7"	50	26"	530 lbs.	Fustona
442B	39 x 52 x 7"	51	26"	605 lbs.	Fustonar
442C	48 x 62 x 7"	51	26"	925 lbs.	Fustonast
442D	38 x 42 x 3½"	50	26"	490 lbs.	Fustonabt
With w	ater tank, extra				

CHAMPION DOWN DRAFT ELECTRIC CAST IRON FORGE NO. 441DD

No. 441DD Champion Electric Forge is the No. 441 Forge on page 39 with the addition of a Down Draft Hood, which instantly removes all smoke and gas from the Forge.

No. Hearth Height Weight Code
441DD 32 x 45" 30" 500 lbs. Factaveris
With water tank, extra







THE CHAMPION TELESCOPIC CANOPY HOOD



The Champion Telescopic Canopy Hood is the most satisfactory and complete forge hood that has ever been placed on a forge.

This Hood is counterbalanced by a cast iron ring around the pipe, making it easy to raise or lower, which can be done in an instant and will permit the hood to remain, without fastening it, to any height desired.

- No. 35 Champion Telescopic Canopy Hood, 36 In. in Diam., Pipe 9 In. in Diam., Maximum Length 9 Ft. and 2 In., Minimum Length 6 Ft. and 10 In., Weight 100 lbs. Code-Fallwild.
- No. 36 Champion Telescopic Canopy Hood, 42 In. in Diam., Pipe 9 In. in Diam., Maximum Length 9 Ft. and 2 In., Minimum Length 6 Ft. and 10 In., Weight 110 lbs. $Code{-Fallsur}$.
- No. 36½ Champion Telescopic Canopy Hood, 54 In. in Diam., Pipe 9 In. in Diam., Maximum Length 10 Ft., Minimum Length 7 Ft., Weight 150 lbs. Code—Falsiclen.

All Hoods can be furnished without the Telescopic attachment if so ordered.

THE CHAMPION ADJUSTABLE CAST IRON FORGE HOOD

The Champion Adjustable Cast Iron Forge Hood is a strong heavy hood with adjustable features not found on any other Forge Hood. The adjusting features are such that the fire can be more thoroughly covered and therefore the smoke and draft more thoroughly drawn up the chimney. It has adjustable opening or closing feature in the rear. Under all conditions and under all drafts this hood is a very desirable one and is manufactured for all size forges.

Champion Adjustable Cast Iron Forge Hood, Size 15 In. x 9 In., Weight 120 lbs. Code-Falle









CHAMPION STEEL DERRICK FORGE

No. 37 Champion Indestructible Steel Derrick Forge is made of steel plate and structural steel, in a light but durable manner.

This Forge is suitable for burning coal or coke, and is particularly well adapted for the oil-well trade.

No.	Hearth	Height	Weight	Code
37	35 x 45"	25''	235 lbs	Falltar

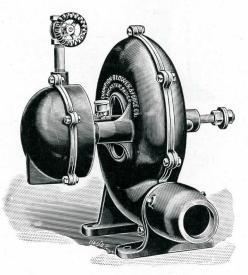
THE CHAMPION STEAM JET OR COMPRESSED AIR BLOWERS

Champion Steam or Compressed Air Blowers are built strong and durable, requiring a minimum jet of either steam or compressed air; particularly adapted for Oil-Well Contractors, for use where any air blast is desired, for forge purposes and ventilation.

The blast-producing wheel in this blower has six blades with side reinforcements, giving a larger volume of blast and greater pressure than any similar blower now on the market.

The shaft has a threaded extension beyond the side of the fan case fitted with lock nuts for an emery wheel attachment, which makes it the highest grade and most efficient blower of its type on the market today.

No.	Height	Diam. Outlet	Outlet Pipe Con- nection	Steam Pipe Con- nection	Fan	Weight	Code
1	145"	25"	11"	1//	81111	55 lbs.	Bet
3	16%"	31"	2"	1//	10"	80 lbs.	Betten
4	19"	43"	3''	3//	11"	115 lbs.	Bettap
7	30′′	61"	5''	3//	17''	215 lbs.	Bettas



THE CHAMPION COMPRESSED AIR RIVET FORGES

The Champion Compressed Air Rivet Forges are Steel Forges equipped for compressed air exclusively, and adopted where heating rivets by compressed air is desired; built with especially constructed needle valve to handle pressure up to 100 pounds, mixing the outside air with compressed air in proportion five to one. These forges are reinforced and constructed very stout to withstand hard

		-		
use.				
No.	Hearth	Height	Weight	Code
9	18''	30"	70 lbs.	Facthomas
990A	18''	31"	70 lbs.	Shipper
990C	22"	31"	80 lbs.	Shipment
990D	24"	31"	90 lbs.	Shipest
		12		



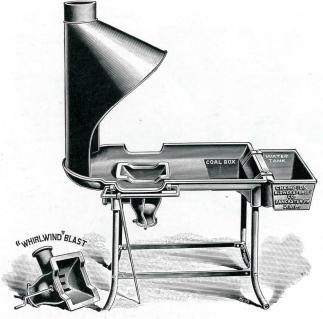
No. 990 A-C-D.



GHAMPION GORGE Co.
** LANCASTER.PA.U.S.A.



THE CHAMPION STATIONARY BLAST FORGES



No. 11. With Half Hood.

No. 11 Champion Stationary Blast Forge is a large and practical hearth for a stationary forge for blacksmith fires. It is supplied with a sloped bottom coal box, enabling the operator to keep the coal at proper degree of dampness to suit the work. This forge is regularly fitted with Whirlwind Blast Anti-Clinker Heavy Nest Tuyere Iron and Champion Blast Gate.

No. $11\frac{1}{4}$ Champion Machinists' Stationary Blast Forge is used by machinists in shops where a power blast is used. This forge is provided with the Champion Blast Gate and Revolving Ball Tuyere Iron.

No.	Hearth	Height	Weight	Code
11	32 x 45"	30′′	315 lbs.	Fallthor
111	23 x 35"	30"	145 lbs.	Falcolotto
With wa	ater tank, extra			

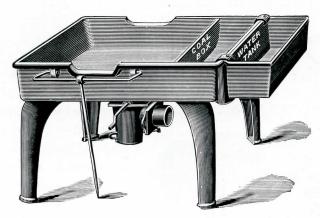


No. 1114. With Half Hood.





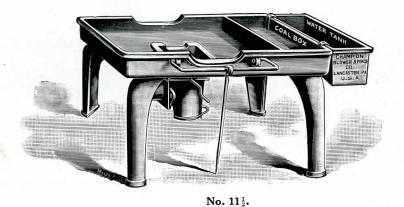
THE CHAMPION STATIONARY BLAST FORGES



No. 12.

Nos. 12, 12½, 13½ and 11½ Champion Stationary Blast Forges are made Extra Heavy for all kinds of blacksmith fires,—far superior to building a forge of brick or stone. These Forges are made for power but can be used for hand, Electric blower or bellows as well. They are supplied with the Champion Blast Gate, Water Tank and the No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron without extra cost.

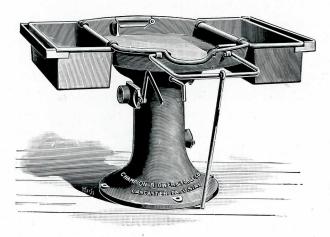
No.	Hearth	Height	Depth	Weight	Code
12	38 x 42"	26''	7''	400 lbs.	Faint
121	39 x 52"	26''	7''	500 lbs.	Falated
131	48 x 62"	26"	7''	835 lbs.	Falchion
111	38 x 42"	26"	31/1	350 lbs.	Frager







THE CHAMPION STATIONARY COLUMN FORGE NO. 113/4



No. 11³/₄ Stationary Column Forge is built entirely of cast iron and specially adapted for both light and medium work on account of its variable depth of the hearth. Is furnished with an anti-clinker Tuyere Iron, lever-controlled Blast Gate, Tool Rest, Coal Box and Water Tank.

No. $11\frac{3}{4}$ Champion Stationary Blast Forge with Tanks, Hearth $24 \times 36\frac{1}{2}$ In., Height 26 In., Depth of Hearth $3\frac{1}{2}$ In. Weight 400 lbs. Code—Fallador.

Canopy Hood, Extra.

THE CHAMPION STATIONARY BLAST FORGES

Nos. 33 and 34 Champion Steel Stationary Blast Forges are built from Steel Plate and Structural Steel. They are suitable for any kind of Blacksmith work. Nothing handsomer, stronger or more complete ever built for a Stationary Blast Forge. Nos. 33 and 34 are supplied with the Champion Blast Gate and the No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron.

No.	Hearth	Height	Weight	Code
33	30 x 36"	30′′	230 lbs.	Falltrank
34	30 x 40"	30′′	240 lbs.	Falltuch
Horsesh	noers' Full Hood,	extra		
Water 7	Tank, extra			



No. 33. With Half Hood.





THE CHAMPION STEEL STATIONARY BLAST FORGES





No. 35.

The Champion Nos. 35 and 36 Round Steel Stationary Blast Forges are built from Heavy Steel Plate and Structural Steel. Where room is an object it often meets a demand no other Stationary Blast Forge can meet. They are supplied with the Champion Blast Gate, also No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron. The Telescopic Canopy Hood is the most satisfactory and complete Forge Hood that ever has been placed on a Forge. The fact that the Hood is counter-balanced by a cast iron ring around the pipe makes it easy to raise or lower, and will remain without fastening at any height desired by the mechanic.

No.	Hearth	Height	Weight	Code
35	36''	30''	475 lbs.	Fallugie
36	45''	30′′	580 lbs.	Fallunt
$36\frac{1}{2}$	60′′	30′′	800 lbs.	Falzone
Telescon	pic Hood, extra.	See page 41.		

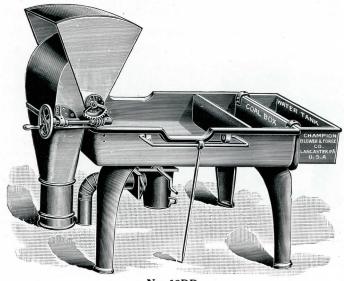
The Champion Nos. 38, 39 and 39½ Square Steel Stationary Blast Forges are built for the Heaviest shop work possible out of Heavy Steel Plate and Structural Steel. They are well adapted for railroad shops and shipyards. They are supplied with a Champion Blast Gate and the No. 400 Champion "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron.

No.	Hearth	Height	Weight	Code
38	42 x 42"	25''	375 lbs.	Fagot
39	54 x 54"	25"	415 lbs.	Faror
39½	72 x 72"	25''	550 lbs.	Faralous





THE CHAMPION STATIONARY DOWN DRAFT FORGES



No. 12DD.

No. 12DD Champion Stationary Down Draft Forge is a heavy built cast iron forge for extra heavy work. It has a coal box as part of the forge, and furnished with a Down Draft Hood, doing away with natural draft. It is furnished with No. 400 Champion Whirlwind Blast Anti-Clinker Heavy Nest Tuyere Iron, Blast Gate and Water Tank.

No. 12DD Champion Stationary Down Draft Forge with water tank, hearth 38 x 42 inches, height 26 inches, depth 7 inches, weight 720 pounds. Code—Falconara.

No. 11\frac{3}{4}DD Champion Stationary Down Draft Forge is a very popular Forge for manual training work. It is built of cast iron with No. 400 Champion Whirlwind Blast Anti-Clinker Heavy Nest Tuyere Iron, Blast Gate and Water Tanks.

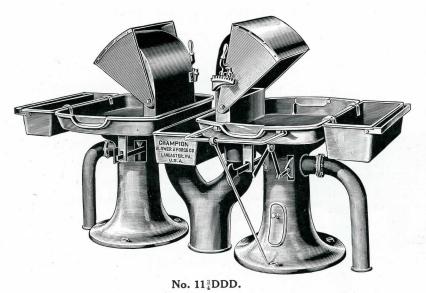
No. 11 $\frac{3}{4}$ DD Champion Stationary Down Draft Forge with tanks, hearth $24 \times 36\frac{1}{2}$ inches, height 26 inches, depth $3\frac{1}{2}$ inches, weight 600 lbs. Code—Fallarum.



No. 113DD.



THE CHAMPION STATIONARY DOWN DRAFT FORGES

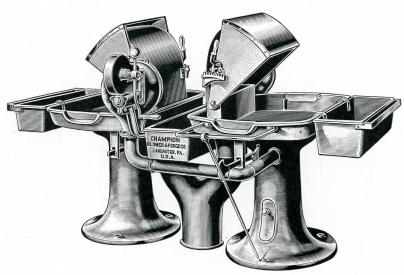


No. 11\(^3\)4DDD Champion Stationary Double Down Draft Forge is made up of two No. 11\(^3\)4 Forges with an exhaust pipe from each leading to one main pipe. Each Forge is constructed exactly like the No. 11\(^3\)4DD Forge.

No. 11\(^3\)\text{DDD} Champion Stationary Double Down Draft Forge with tanks, each hearth 24 x 36\(^1\)\text{ inches, height 26 inches, depth 3\(^1\)\text{ inches.} Weight complete 1200 pounds. \(Code\)—Fangosa.

No. 11\frac{3}{4}HDDD Champion Stationary Double Down Draft Forge is exactly like the No. 11\frac{3}{4}DDD Forge, with a No. 400 Hand Blower, which stands in a class of its own, to produce the blast instead of a Power Blower connection. This method of producing blast is of particular advantage as it keeps the student constantly at the forge when the material is being heated, consequently more quickly teaches him how to secure a correct welding heat.

No. 113HDDD Champion Stationary Double
Down Draft Forge with tanks. Each Hearth
24 x 36½ inches. Height 26 inches. Depth
3½ inches. Weight 1250 lbs. Code—Fallido.



No. 113HDDD.



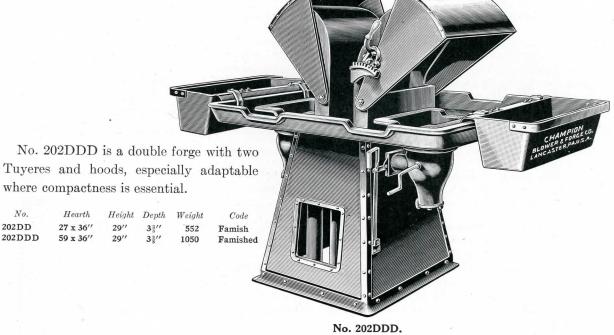
THE CHAMPION STATIONARY DOWN DRAFT FORGES



No. 202DD.

No. 202DD Champion Stationary Down Draft Forge is one of the most popular types for Manual Training Service.

The hearth is cast iron, heavy and rigid, the base is constructed of steel. The No. 400 Champion Whirlwind Blast Anti-Clinker Heavy Nest Tuyere Iron is used. Furnished with blast gate, coal box and water tank.



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49







Takes all size straight shank bits from 0 to $\frac{1}{2}$ inch.

The simplest and most practical three-jawed chuck on the market. The jaws work from the center of the chuck, insuring perfect alignment, instead of laying against outside shell of chuck, as most chucks are made.

The jaws on the Champion Chuck are forced together evenly when the shell of chuck is drawn up, the pressure being so great that all size bits up to full capacity of the chuck are guaranteed not to slip.

No wrench is necessary to tighten or loosen the Champion Chuck, as the ball-bearing end thrust makes turning easy.

This Chuck is small in diameter, so that short bits can be used and the work being drilled can readily be seen by the operator.

Diameter of Champion Chuck $1\frac{3}{4}$ inches; length over all $2\frac{1}{4}$ inches.

The taper hole in Champion Chuck can be fitted with any size arbor: $\frac{1}{2}$ inch, $\frac{41}{64}$ inch, or No. 1, No. 2, No. 3 or No. 4 Morse Taper, as ordered.

Weight 1 lb.



THE CHAMPION NEVER SLIP DRILL CHUCK



The Champion "Patented" Never Slip Drill Chuck is made of one piece, and is positively interlocking without a loose part to it.

The interlocking feature of the Champion "Patented" Chuck is a square shoulder, worked out of the solid metal, in which the flat side of the drill bit shank fits; thus locking the bit from turning in chuck.

The Set Screw is countersunk, leaving no protrusion; meeting safety laws in all conditions.

Special Notice. All Champion Drill Spindles are manufactured to hold bits the same as the Champion "Patented" Never Slip Chuck invention, without extra charge.

No. 1 Champion Never Slip Drill Chuck with Wrench Complete to Fit all Champion Drills with ½-inch hole and take in \S - or \S - or \S - inch Straight Shank Drill Bits. Code—Fielde.

No. 2 Champion Never Slip Drill Chuck with Wrench Complete to Fit all Champion Drills with \{\frac{1}{6}\)- or \(\frac{4}{64}\)-inch hole and take in \(\frac{1}{2}\)-inch Straight Shank Drill Bits. \(Code\)—Fielboar.

We can furnish a chuck with either $\frac{1}{2}$ - or $\frac{4}{64}$ -inch shank to take in any size square shank drill bits.

To meet the demand of those using Morse Taper Shank Drill Bits, we are able to apply a Morse Taper Hole to the spindles of any of our Drill Presses not regularly equipped thus, if specially ordered, at a slight extra cost.

All friction between the feed screw and spindle on Champion Drills is taken up by an End Thrust Ball Bearing, which travels between two hardened, ground and polished plates; the balance as shown on illustration.

The balls are not loose and free, travelling one against the other, but are held in place by a retainer, which not only prevents the friction of one ball travelling against the other but carries in the walls of the retainer a sufficient quantity of grease to keep the balls lubricated without attention for at least a six months' period. The retainer holds these balls as a single unit, which prevents them from falling out or becoming lost in reassembling the drill.

This is the same end thrust construction that is used on all the highest priced automobiles.







CHAMPION AUTOMATIC-FEED BENCH DRILL NO. 99

CHAMPION SELF-FEED BENCH DRILL NO. 104

Made with Ball Bearings

No. 104 Bench Drill is a large substantial Bench Drill at an unusually low price. Spindle has end thrust Ball Bearings, saving 50% in power, and are made of the highest grade of lathe turned tool steel. All bearings ground out of the solid metal. No babbitt used on this Drill. Has automatic self-feed. It has lathe-turned and slotted Champion Drills are all machinejigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to center of 12" circle. Drills holes from 0 to 3/4 Spindle $\frac{7}{8}$ " in diameter; has up-and-down run of 3 inches.

Greatest distance from table to spindle 734 Greatest distance from spindle to base 111". Height over-all 32 inches.

Spindle bored like Champion Never-Slip Chuck, for shank drill bits; if specially ordered, to take 41/64" shank bits.

Weight 75 lbs. Code-Fecond.

No. 104C Bench Drill, same as No. 104 Bench Drill, except equipped with 3-Jaw Chuck, taking straight shank bits up to ½ inch.

No. 104P Drill same as No. 104 with tight and loose pulleys, 6-inch diameter and 2-inch face for power. Speed 250 R.P.M. Weight 90 lbs. Code—Fecondas.

No. 99 Bench Drill can be attached either to the bench or wall. Has automatic feed controlled by revolving the crank and quick-return operated by suddenly ceasing the crank speed. Has die cast heavy balance gears. wheel and lathe-turned table adjustable to any height. Furnished with Champion three-jawed steel chuck.



SPECIFICATIONS

Drills to center of 12-inch circle. Drills holes up to 1 inch.

Spindle 5 inch in diameter; has up-and-down run of 15 inches. Greatest distance between table and chuck 7½ inches. Height 28¼ inches.

CHAMPION

WORM GEAR BENCH DRILL

Weight 40 lbs. Code-Fetide.

CHAMPION WORM GEAR POST DRILL

NO. 300

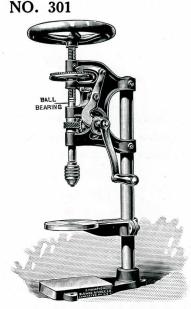


The cut Worm-gears run noiseless, and are guaranteed durable. Has wheel feed which can be used for hand feeding.

spindle is equipped with endthrust ball bearing with hardened steel races, making a frictionless durable bearing.

The flywheel makes two revolutions to each turn of the crank, developing momentum which carries the drill bit through the work without exerting the energy required in operating a Drill which is furnished without a flywheel.

Table and base are lathe turned and work can be drilled on base as well as on table. All parts are standard, inter-changeable, jig-made; no babbitt being used in the entire construction.



SPECIFICATIONS

Travel of spindle 25 inches. Capacity from smallest to ½ inch. Chuck has three jaws taking straight shank bits up to 1 inch. Height over-all 31 inches.

Drills to center of 12-inch circle. Greatest distance between chuck and table 7 inches.

Weight 50 lbs. Code—Drillman.

Travel of spindle 25 inches. Capacity from smallest to ½ inch. Chuck has three jaws taking straight shank bits up to ½ inch. Height over-all 32 inches. Drills to center of 12-inch circle.

Greatest distance between chuck and base 13 inches. Length of column 25 inches. Diameter of column 11 inches. Weight 65 lbs. Code—Driller.







CHAMPION HAND-FEED POST DRILL NO. 92

Made with Ball Bearings



No. 92 Drill is a plain drill without a flywheel. Has one speed, hand feed and end thrust ball bearings made of the best grade lathe-turned tool steel, which saves 50 per cent. in power. All bearings are ground out of the solid metal. No babbitt used on this drill. Lathe-turned and slotted table. All parts machine-jigged, therefore, standard and interchangeable.

SPECIFICATIONS

Drills to center of 12-inch circle.

Drills holes up to $\frac{3}{4}$ inch.

Spindle $\frac{3}{8}$ inch diameter; has up-and-down run of 3 inches.

Greatest distance between table and spindle 8 inches.

Height 35 inches. Spindle bored like Champion Never Slip Chuck, for $\frac{1}{2}$ -inch shank bits; if specially ordered, to take 41/64-inch shank bits.

Weight 40 lbs. Code-Feeler.

CHAMPION SELF-FEED POST DRILL NO. 106

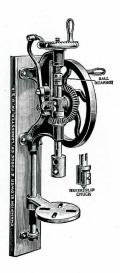
Made with Ball Bearings

No. 106 Drill is the lowest priced self-feed Post Drill built. Is single geared, self-feed and has end thrust Ball Bearings made of the highest grade of lathe-turned tool steel, which saves 50% in power. All bearings ground out of the solid metal. No babbitt used on this Drill. Lathe-turned and slotted table. All parts machine-jigged, therefore, standard and interchangeable.

SPECIFICATIONS

Drills to center of 12-inch circle. Drills holes up to $\frac{3}{4}$ inch. Spindle $\frac{7}{8}$ inch in diameter; has up-and-down run of 3 inches.

Greatest distance table to spindle $8\frac{3}{4}$ inches. Height 31". Spindle bored like Never Slip Chuck, for ½-inch Round Shank Bits; when specially ordered 41/64-inch. Weight 50 lbs. Code—Fecit.

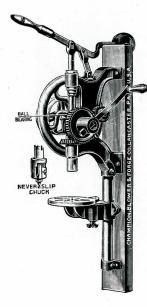






CHAMPION LEVER-FEED POST DRILL NO. 100

Made with Ball Bearings



No. 100 Lever-Feed Back-Geared Post Drill is designed for light and rapid drilling, reaming and countersinking in iron or wood. The lever is counterbalanced by a weight which brings the bit out of the work as soon as the hole is drilled.

SPECIFICATIONS

Drills to center of 14-inch circle. Drills holes up to $\frac{3}{4}$ inch.

Spindle 1 inch in diameter; has up-and-down run of $3\frac{1}{2}$ inches.

Greatest distance between table and spindle 10 inches. Height of drill 40 inches.

Spindle bored like Champion Never Slip Chuck, for

 $\frac{1}{2}$ -inch shank bits; if specially ordered to take 41/64-inch shank bits.

Weight 100 lbs. Code-Fenceless.

No. 100P Drill, same as above, with tight and loose pulleys, 6-inch diameter and 2-inch face for power. Speed 250 R.P.M.

Weight 125 lbs. Code—Felspart.

CHAMPION LEVER-FEED POST DRILL

NO. 100B

Made with Ball Bearings

No. 100B Drill is designed for battery drilling, with large table and long run of table suitable for any size battery. Bit is immediately raised from out of the hole just drilled by means of a spring on the feed rod.

SPECIFICATIONS

Drills to center of 14-inch circle. Drills holes up to $\frac{3}{4}$ inch.

Spindle 1 inch in diameter; has up-and-down run of $\mathbf{3}^{\frac{1}{2}}$ inches.

Greatest distance between table and spindle 24 inches.

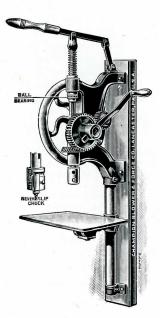
Height of drill 52 inches.

Spindle bored like Champion Never Slip Chuck, for $\frac{1}{2}$ -inch shank bits; if specially ordered to take 41/64-inch shank bits.

Weight 100 lbs. Code-Fetnor.

No. 100BP Drill, same as above, with tight and loose pulleys, 6-inch diameter and 2-inch face for power. Speed 250 R.P.M.

Weight 125 lbs. Code-Fetmar.

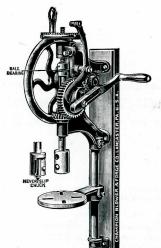


9

CHAMPION SELF-FEED POST DRILL

NO. 103

Made with Ball Bearings



No. 103 Champion Post Drill is the lowest priced Back-Geared Self-feed Post Drill built. Spindle has end-thrust ball bearings which save 50% in power, and are made from the highest grade lathe-turned Tool Steel.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore, all parts are standard and interchangeable.

SPECIFICATIONS

Drills to center of 11-inch circle. Drills holes from 0 to $\frac{3}{4}$ inch. Spindle $\frac{7}{8}$ inch in diameter; has up-and-down run of 3 inches. Greatest distance from table to spindle $\frac{8}{4}$ inches.

Greatest distance from table to spindle 8\frac{3}{4} inches.

Height of drill 31". Spindle bored like Champion

Never Slip Chuck to take \frac{1}{2}-inch straight shank

drill bits; if specially ordered to take 41/64 inch. Weight 60 lbs. Code—Fasicher.

No. 103P Drill, same as above, with tight and loose pulleys, 6-inch diameter and 2-inch face for power. Speed 250 R.P.M.

Weight 65 lbs. Code—Fasichion.

CHAMPION SELF-FEED POST DRILL.

NO. 102

Made with Ball Bearings

No. 102 Champion Post Drill has the same capacity as the No. 101 Drill shown on page 55, only is lighter in weight, and is particularly serviceable for light work.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has automatic self-feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of a 12-inch circle. Drills from 0 to \(\frac{3}{4}\)-inch holes.

Spindle $\frac{\pi}{3}$ inch in diameter; has up-and-down run of 3 inches.

Greatest distance from table to spindle 83 inches. Height of drill 34 inches.

Spindle bored like Champion Never Slip Chuck, to

take $\frac{1}{2}$ -inch Straight Shank Drill Bits. If specially ordered to take 41/64-inch.

Weight 60 lbs. Code-Fasich.

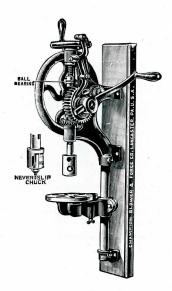
No. 102P Drill same as above, with tight and loose pulleys, 6-inch diameter and 2-inch face for power. Speed 250 R.P.M. Weight 65 lbs. Code—Fasichat.

No. 105 Champion Post Drill is of the same general construction and capacity as the No. 102 Drill, except that it has two speeds, making the drill quite adaptable for light and heavy drilling.

No. 105 Drill, same as above, with two-speed drive.

Weight 60 lbs. Code—Fetais.

No. 105P Drill, same as above, with tight and loose pulleys, 6-inch diameter, 2-inch face, for power. Speed 250 R.P.M. Weight 65 lbs. Code—Fetalia.

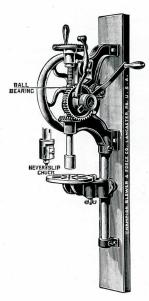












CHAMPION SELF-FEED POST DRILL NO. 101

Made with Ball Bearings

No. 101 Champion Post Drill is a first-class Tool for light work.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

The End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable. SPECIFICATIONS

Drills to the center of 12-inch circle.

Drills from 0 to 3-inch hole.

Spindle 3 inch in diameter; has up-and-down run of 3

Greatest distance from table to spindle 83 inches. Height of drill 35 inches.

Spindle bored like Champion Never Slip Chuck to take in 1-inch Straight Shank Drill Bits. If especially ordered to take 41/64-inch.

Weight 80 lbs. Code-Fesapo.

No. 101P Drill, same as above, with tight and loose pulleys, 6-inch diameter and 2-inch face, for power. Speed 250 R.P.M. Weight 85 lbs. Code-Fesapon.

CHAMPION SELF-FEED POST DRILL NO. 98

Made with Ball Bearings

No. 98 Champion Post Drill is a first-class back-geared Drill.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this drill.

End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of a 14-inch circle.

Drills from 0 to 1-inch hole.

Spindle 1 inch in diameter; has up-and-down run of 3 inches.

Greatest distance from table to spindle 10 inches. Height of drill 40 inches.

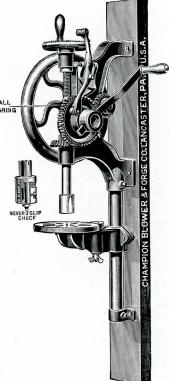
Spindle bored like Champion Never Slip Chuck to

take in 1-inch Straight Shank Drill Bits. If especially ordered to take 41/64-inch.

Weight 100 lbs. Code—Fearless.

No. 98P Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter, 2-Inch Face for Power. Speed 250 R.P.M.

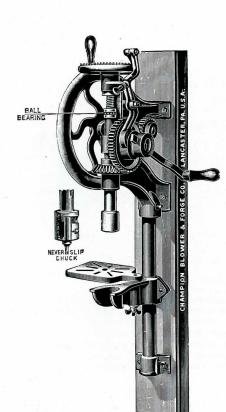
Weight 105 lbs. Code-Fencible.











CHAMPION SELF-FEED POST DRILL NO. 90

Made with Ball Bearings

No. 90 Champion Automatic Self-Feed Post Drill represents in design the world's "Original" or first \$10.00 Post Drill; producing a world's sensation in 1890 for the Champion, and today represents twice the tool it did then.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of a 14½-inch circle.

Drills from 0 to 1-inch hole.

Spindle 1½ inches in diameter; has up-anddown run of 3 inches.

Greatest distance from table to spindle 10 inches. Height or drill 43 inches.

Spindle bored like Champion Never Slip

Chuck to take in $\frac{1}{2}$ -inch Straight Shank Drill Bits. If especially ordered to take 41/64-inch.

Weight 95 lbs. Code-Febrile.

No. 90P Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter, 2-Inch Face for Power. Speed 250 R.P.M.
Weight 105 lbs. Code—Fecal.

CHAMPION SELF-FEED POST DRILL NO. 91

Made with Ball Bearings

No. 91 Champion Self-Feed Post Drill has two speeds and back gears. Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

The End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of a 14½-inch circle.

Drills from 0 to 1-inch hole.

Spindle 1 inches in diameter; has up-and-down run of 3 inches.

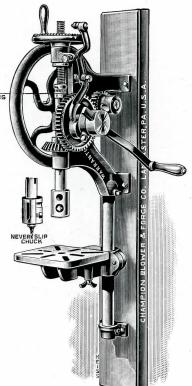
Greatest distance from table to spindle 10 inches. Height of drill 43 inches.

Spindle bored like Champion Never Slip Chuck to

take in ½-inch Straight Shank Drill Bits. If especially ordered to take 41/64-inch.

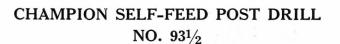
Weight 100 lbs. Code-Feenwell.

No. 91P Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter, 2-Inch Face for Power. Speed 250 R.P.M. Weight 105 lbs. Code—Festen.









Made with Ball Bearings

No. 93½ Champion Post Drill is the same as the No. 93, shown below, except that this Drill does not have double journal bearings, or bearings on each side of the gears.

It has two speeds.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

The End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of a 15-inch circle.

Drills from 0 to 11-inch hole.

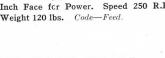
Spindle 11 inches in diameter; has up-anddown run of 3 inches.

Greatest distance from table to spindle 10 inches. Height of drill 46 inches.

Spindle bored like Champion Never Slip Chuck to take in 12-inch Straight Shank Drill Bits. If especially ordered to take 41/64-inch.

Weight 115 lbs. Code-February.

No. 93 P Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter, 2-Inch Face fcr Power. Speed 250 R.P.M. Weight 120 lbs. Code-Feed



CHAMPION SELF-FEED POST DRILL NO. 93

Made with Ball Bearings

No. 93 Champion Self-Feed Post Drill is a high-grade up-to-date back-geared Drill, with double journal bearings to all gears.

It has two speeds.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

DRICES TO CENTER OF

15 INCH (TRCLE

The End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of a 15-inch circle.

Drills from 0 to 11-inch hole.

Spindle 11 inches in diameter; has up-anddown run of 3 inches.

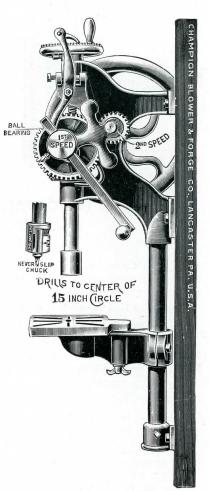
Greatest distance from table to spindle 10 inches. Height of drill 46 inches.

Spindle bored like Champion Never Slip Chuck

to take in ½-inch Straight Shank Drill Bits. If especially ordered to take 41/64-inch.

Weight 120 lbs. Code-Fay.

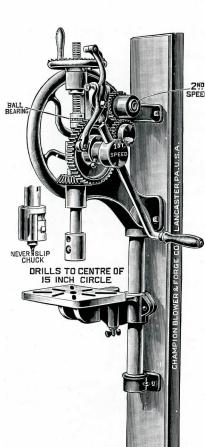
No. 93P Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter, 2-Inch Face for Power. Speed 250 R.P.M. Weight 125 lbs. Code—Fealty.











CHAMPION SELF-FEED THREE-GEARED SELF-FEED POST DRILL

NO. 95

Made with Ball Bearings

No. 95 Champion Self-Feed Three-Geared Ball Bearing Post Drill is stocky in design. It has three gears to give second speed same turning direction of the crank as the first speed.

It has two speeds that turn the same direction.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

The End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of a 15-inch circle. Drills from 0 to 1 1-inch hole.

Spindle 11 inches in diameter; has up-anddown run of 3 inches.

Greatest distance from table to spindle 10 inches. Height of drill 46 inches.

Spindle bored like Champion Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If especially ordered to take 41/64-inch.

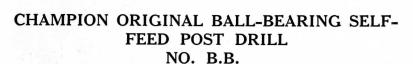
Weight 115 lbs. Code-Feenland.

No. 95P Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter, 2-Inch Face for Power. Speed 250 R.P.M. Weight 125 lbs. Code—Feetless.

No. 95\(^1\) Champion Self-feed Ball-Bearing Iron Back Three-Geared Post Drill is the same in size and dimensions as the No. 95 Drill,

with the addition of an Iron Back, which makes it very rigid and extremely firm in doing heavier work. Weight 140 lbs.

No. 95 P Drill, same as above, with Tight and Loose Pulleys, 6-Inch Diam., 2-Inch Face for Power. Speed 250 R.P.M. Weight 145 lbs. Code—Feebuest.



No. B. B. Champion "Original" Ball-Bearing Post Drill has three gears with double journal bearings to each gear, in order to give on the second speed the same turning direction of the crank as the first speed.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

The End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

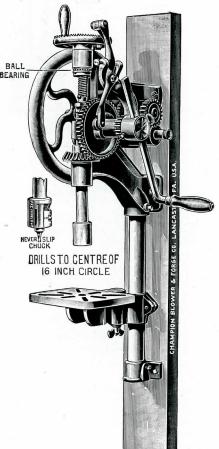
SPECIFICATIONS

Drills to the center of a 16-inch circle. Drills from 0 to 1½-inch hole.

Spindle 1½- inches in diameter; has up-and-down run of 3 inches.

Greatest distance from table to spindle 9½ inches. Height of drill 46 inches. Spindle bored like Champion Never Slip Chuck to take in $\frac{1}{2}$ -inch Straight Shank Drill Bits. If especially ordered to take 41/64-inch. Weight 120 lbs. Code—Fear.

No. B. P. Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter, 2-Inch Face for Power. Speed 250 R.P.M. Weight 125 lbs. Code—Feast.





2ND SPEED

ST SPEED

DOUBLE

BEARINGS

AUTOMATIC SELF





NO. 96

Made with Ball Bearings

No. 96 Champion Automatic Quick-Return Self-Feed Post Drill stands without a rival in its class in the markets of today.

It has three back gears with double journal bearings to each gear, in order to give second speed same turning direction of the crank as the first.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

The Quick-Return Lever is thrown into place while the Drill continues in motion, where it remains until the bit is raised out of the work and automatically stops, requiring no attention from the operator, and is again ready for the next hole.

The End Thrust Ball Bearings save 50% in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged; therefore all parts are absolutely tandard and interchangeable.

SPECIFICATIONS

Drills to the center of a 151-inch circle.

Drills holes from 0 to 1½ inches.

Spindle 1 inches in diameter; has up-and-down run of 3 inches.

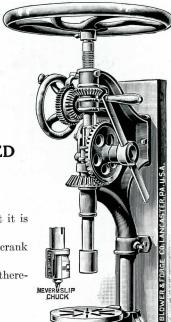
Greatest distance from table to spindle $9\frac{3}{4}$ inches. Height of drill, 46 inches.

Spindle bored like Champion Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If especially ordered to take 41/64-inch.

Weight 130 lbs. Code-Feather.

No. 96P Drill, same as above, with Tight and Loose Pulleys, 6-Inch Diameter and 2-Inch

Face for Power. Speed 250 R.P.M. Weight 135 lbs. Code—Feature.



CHAMPION SINGLE-GEARED SELF-FEED DRILL NO. $2\frac{1}{2}$

No. $2\frac{1}{2}$ Champion Single-Geared Upright Self-Feed Post Drill is so constructed that it is very strong and powerful and is capable of doing a large capacity of work.

The Fly-Wheel on the Upright Drill Spindle with $1\frac{1}{2}$ revolutions to each turn of the crank makes it a drill highly appreciated where known.

The Automatic Self-Feed Wheel is entirely separate from the Hand-Feed Wheel and therefore makes both feeds convenient.

All Bearings are ground out of the solid metal.

ARRANTED

No Babbitt used on this drill.

Has Automatic Self-Feed.

15/2 INCH CIRCLE.

BALL

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of a 14-inch circle. Drills holes from 0 to 1 inch.

Spindle 11 inches in diameter; has up-and-down run of

Greatest distance from table to spindle 14 inches.

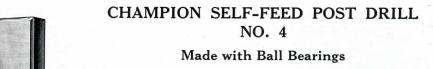
Height of drill 54 inches.

Spindle bored like Champion Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If especially ordered to take 41/64-inch. Weight 145 lbs.

Code—Federate







No. 4 Champion Three-Geared Post Drill has three back gears with double journal bearings to each gear to give the second speed same turning direction of the crank as the first.

This is a high-grade heavy-built tool with large swing at a moderate price.

It has two speeds.

Spindle has End Thrust Ball Bearings.

All Bearings ground out of the solid metal.

No Babbitt used on this drill.

The End Thrust Ball Bearings save 50% in power and are made from the highest grade of lathe-turned tool steel.

It has Automatic Self-Feed.

Has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of an 18-inch circle.

Drills from 0 to 11 inches.

Spindle 11 inches in diameter; has up-anddown run of 5 inches.

Greatest distance from table to spindle 15 inches. Height of drill 54 inches.

Spindle bored like Champion Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If especially ordered to take 41/64-inch.

Weight 195 lbs. Code-Fenusculis.

No. 4P Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter, 2-Inch Face for Power. Speed 290 R.P.M. Weight 200 lbs. Code—Fenuscula.

CHAMPION SELF-FEED POST DRILL NO. 41/2

ol

Made with Ball Bearings

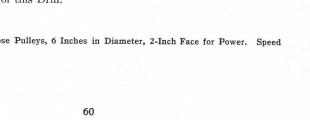
No. $4\frac{1}{2}$ Champion Three-Geared Upright Post Drill is in every respect the same as No. 4 shown above, except that Drill has Quick-Return and Hand-Feed Handle. Otherwise it is precisely the same in design, dimensions and construction as the No. 4.

This is a very heavy, large swing, quick-acting Drill and worthy of special consideration. Carefully read above for full description of this Drill.

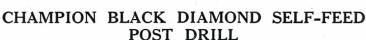
Weight 205 lbs. Code-Fenriswolf.

NEVER SLIP

No. 42P Drill, same as above with Tight and Loose Pulleys, 6 Inches in Diameter, 2-Inch Face for Power. Speed 290 R.P.M. Weight 210 lbs. Code-Fenowed.







Made with Ball Bearings

Champion Ball-Bearing Black Diamond Automatic Self-Feed Post Drill is a tool whose merit is worth looking into.

The Gearing is designed for easy and quick running, compounded for increasing power, making it a very powerful and desirable drill.

The side Fly Wheel in connection with the top Fly Wheel is very practical, when taken into consideration that both the Fly Wheels make two revolutions to each turn of the crank.

It has two speeds.

Crank turns same direction on first and second speed.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

The End Thrust Ball Bearings save 50% in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of an 18-inch circle. Drills holes from 0 to $1_{\frac{1}{2}}$ inches. Spindle $1_{\frac{1}{4}}$ inches in diameter; has upand-down run of 4 inches.

and-down run of 4 inches.

Greatest distance from table to spindle
16½ inches.
Height of drill 56 inches.
Spindle bored like Champion Never Slip Chuck to take
in ½-inch Straight Shank Drill Bits. If especially
ordered to take 41/64-inch.
Weight 200 lbs. Code—Fedegosa.
The Champion Black Diamond Drill, same as above, with
Tight and Loose Pulleys, 6 Inches Diameter, 2-Inch
Face for Power. Speed 105 R.P.M. Weight 215 lbs.
Code—Fecundat.

Extra for Wheel Holder Attachment.

CHAMPION SELF-FEED POST DRILL NO. 5

Made with Ball Bearings

No. 5 Champion 20-inch Swing Three-Geared Ball-Bearing Upright Self-Feed Post Drill with Quick-Return and Hand-Feed Handle is a heavy and practical tool designed for a great variety of work. The 20-inch Swing makes it a first-class medium-priced Drill, as the large swing enables work of much larger range to be drilled.

All Gears have Double Journal Bearings.

Has two speeds.

Spindle has End Thrust Ball Bearings.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

Has Automatic Self-Feed with Quick-Return and Hand-Feed Handle.

It has lathe-turned and slotted table.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.

SPECIFICATIONS

Drills to the center of a 20-inch circle. Drills holes from 0 to $1\frac{1}{2}$ inches. Spindle $1\frac{1}{4}$ inches in diameter; has up-and-down run of 5

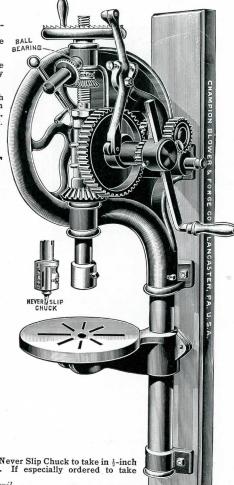
inches.

Greatest distance from table to spindle 16 inches. Height of drill 55 inches.

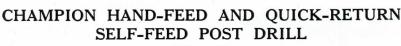
Spindle bored like Champion Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If especially ordered to take 41/64-inch. Weight 250 lbs. Code—Fenonil.

No. 5P Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter, 2-Inch Face for Power. Speed 290 R.P.M. Weight 260 lbs. Code—Fenoribus.









NO. 97

Made with Ball Bearings

No. 97 Champion Self-Feed and Hand-Feed Quick-Return Drill on both speeds is a very substantially built Drill.

The Propeller Wheel Hand-Feed and Self-Feed are independent of each other and for quick work the hand feed is unsurpassed and acts as the quick return for the Drill Bit.

It has quick-acting features and points of simplicity never found on a drill of this price before.

A capital drill for garages and battery service stations.

It has End Thrust Ball Bearings.

The End Thrust Ball Bearings save 50 per cent. in power and are made from the highest grade of lathe-turned tool steel.

It has three gears, giving second speed same turning direction as first.

It has lathe-turned and slotted table.

All Bearings are ground out of the solid metal.

No Babbitt used on this Drill.

Champion Drills are all machine-jigged, therefore all parts are absolutely standard and interchangeable.



Drills to the center of 161-inch circle.

Drills holes from 0 to $1\frac{1}{4}$ inches. Spindle $1\frac{1}{8}$ inches in diameter; has up-and-down run of $5\frac{1}{2}$ inches.

Greatest distance from table to spindle $12\frac{1}{2}$ inches. Height of drill 50 inches.

Spindle bored like Champion Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If especially ordered to take 41/64-inch.

Weight 170 lbs. Code-Fease.

No. 97P Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter, and 2-Inch Face for Power. Speed 250 R.P.M. Weight 175 lbs.

CHAMPION HAND-FEED AND QUICK-RETURN SELF-FEED POST DRILL NO. 197

Made with Cut Gears and Ball Bearings

No. 197 Champion Self-Feed and Hand-Feed Quick-Return Drill has quick-acting features, and points of simplicity never found on a drill before. It is equipped with back gears cut throughout, and ball bearings, making a very substantially built drill.

The Propeller Wheel Hand-Feed and Self-Feed are independent of each other. For quick work the hand-feed is unsurpassed.

It acts as quick return for the drill bit.

Patented Dec. 21, 1915. No. 1,165,357.

BALL

It has two speeds and to change from slow to fast is accomplished by sliding the cut

The Table is raised and lowered by a Rack which is quick in action, and can be turned out of the way.

It has End Thrust Ball Bearings, which save 50 per cent. in power, and are made of latheturned tool steel. It has lathe-turned and slotted table.

All bearings are ground out of the solid metal.

SPECIFICATIONS

Drills to the center of a 20-inch circle.

Spindle 11 inches in diameter; has up-and-down run of 7 inches.

Greatest distance from table to spindle 17 inches. Height of drill 68 inches.

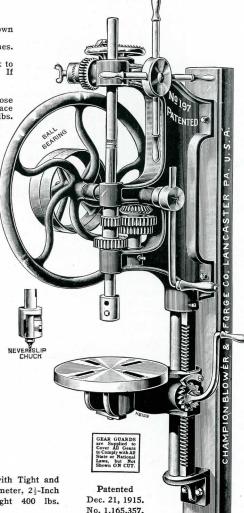
Spindle bored like Champion Never Slip Chuck to take 12-inch Straight Shank Bits. If especially ordered to take 41/64-inch.

Drills holes up to 11 inches.

Weight 375 lbs. Code-Fim.

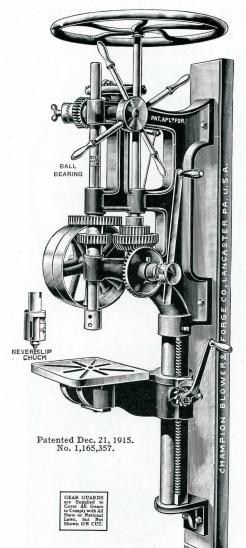
No. 197P Drill, same as above, with Tight and Loose Pulleys, 11 Inches in Diameter, $2\frac{1}{2}$ -Inch Face. Speed 80 R.P.M. Weight 400 lbs. Code-Fie.

Extra for Wheel Holder Attachment.









CHAMPION HAND-FEED AND QUICK-RETURN SELF-FEED POST DRILL NO. 297

Made with Cut Gears and Ball Bearings

No. 297 Champion Self-Feed and Hand-Feed Quick-Return Drill represents a high-grade, large and powerful drill, equipped with both self-feed and hand-feed, making it a very substantially built drill. It has quick-acting features and points of simplicity never found on a drill of this character. The Propeller Wheel Hand-Feed and Self-Feed are independent of each other. For quick work the hand-feed is unsurpassed. It acts as a quick return for the drill bit. The Upright Fly Wheel Shaft runs on frictionless End Thrust Ball Bearings on its lower end, and is supplied with a heavy fly wheel for keeping up momentum. It has double Back Cut Gears with two speeds, and to change from fast to slow is accomplished by sliding the cut gears, requiring but an instant. The Table is raised and lowered by a Rack which is quick in action and can be turned back out of the way. It has End Thrust Ball Bearings which save 50 per cent. in power, and made of high-grade lathe-turned tool steel. It has lathe-turned and slotted

SPECIFICATIONS

Spindle $1\frac{1}{4}$ inches in diameter; has up-and-down run of 9 inches. Drills holes up to $1\frac{1}{2}$ inches.

Greatest distance from table to spindle 19 inches. Height of drill 72 inches.

Spindle bored like Champion Never Slip Chuck to take 41/64-inch Straight Shank Bits. If especially ordered to take ½-inch. Drills to the center of a 24-inch circle.

Weight 410 lbs. Code-Fide.

No. 297P Champion "Patented" Self-Feed o. 297P Champion "Patented" Self-Feed and Propeller Hand-Feed Drill, as above described, with Tight and Loose Pulleys 11 inches in Diameter and 2½-inch Face, for Hand and Power Combined. Speed 80 R.P.M. Weight 435 lbs. Code—Fibit. No. 297CP Champion "Patented" Self-Feed and Propeller Hand-Feed Drill, as above described, with Cone Pulley and Countershaft Complete for Hand and Power Combined. Weight 510 lbs. Code—Figet.

Extra for Wheel Holder Attachment.

CHAMPION HAND-FEED AND QUICK-RETURN SELF-FEED UP-RIGHT DRILL

NO. 397 Made with Cut Gears and **Ball Bearings**

Hand-Feed, Quick-Return Drill represents a high-grade, large and powerful

drill, equipped with both self-feed and propeller wheel hand-feed, making it a very substantially built drill. It has quick-acting features and points of simplicity never found on a drill of this character. The Propeller Wheel Hand-Feed and Self-Feed are independent of each other. For quick work the hand-feed is unsurpassed. It acts as a quick return for the drill bit. The Upright Fly Wheel Shaft runs on frictionless End Thrust Ball Bearings on its lower end, and is supplied with a heavy fly wheel for keeping up momentum. It has double Back Cut Gears with two speeds, and to change from fast to slow is accomplished by sliding the cut gears, requiring but an instant. The Table is raised and lowered by a Rack which is quick in action and can be turned back out of the way. It has End Thrust Ball Bearings which save 50 per cent. in power, and made of high-grade lathe-turned tool steel. It has lathe-turned and slotted table.

No. 397 Champion Self-Feed and

SPECIFICATIONS

Spindle $1\frac{1}{4}$ inches in diameter; has up-and-down run of 9 inches. Drills holes up to $1\frac{1}{2}$ inches.

Greatest distance from table to spindle 19 inches. Height of drill 72 inches.

Spindle bored like Champion Never Slip Chuck to take 41/64-inch Straight Shank Bits. If especially ordered to take ½-inch.

Drills to the center of a 24-inch circle.

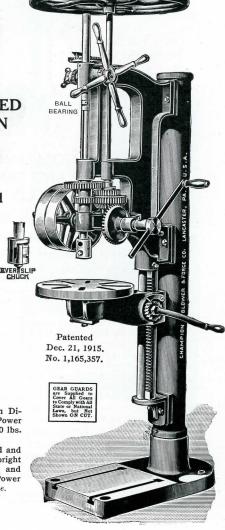
Weight 790 lbs. Code-Fride.

No. 397P Champion "Patented" Self-Feed and Propeller Hand-Feed Drill, as above described,

with Tight and Loose Pulleys 11 inches in Diameter and $2\frac{1}{2}$ -inch Face, for Hand and Power Combined. Speed 80 R.P.M. Weight 800 lbs. Code-Fribit.

No. 397CP Champion "Patented" Self-Feed and Propeller Hand-Feed Quick-Return Upright Drill, same as above, with Cone Pulley and Countershaft Complete for Hand and Power Combined. Weight 825 lbs. Code—Frigete.

Extra for Wheel Holder Attachment.







CHAMPION COMBINATION AUTOMATIC SELF-FEED AND DOUBLE COMPOUND LEVER-FEED POST DRILL

NO. 200

The Original Combination Lever and Self-Feed Post Drill

Made with Ball Bearings

No. 200 Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Post Drill has the Double Compound Lever-Feed, which produces 80 per cent. more pressure at the point of the Drill Bit than any other drill manufactured. The "Patented" Automatic Self-Feed and Double Compound Link and Rack Lever-Feed are both independent of each other and are changed from one to the other in the fraction of a second. With either feed, the Drill Spindle has instantaneous return of the Drill Bit out of the hole drilled and again instantaneous return on the material for the next hole. This Drill Spindle and Bit are positively always raised up or down while using either feed, by the use of the quick acting Lever. It has two speeds with three gears, in order to give the second speed same turning direction of the crank as the first speed. All end friction on this Drill is taken from the Drill Spindle by the use of Ball Bearings, making it a very light and quiet running tool. The Lever makes it especially convenient for wood boring.

SPECIFICATIONS

Drills to the center of a 16-inch circle. Spindle $1\frac{1}{4}$ inches in diameter; has an up-and-down run of 4 inches.

Greatest distance from table to spindle 11 inches. Height of drill 51 inches.

Spindle bored like Never Slip Chuck to take in ½-inch Straight Shank Drill Bits. If especially ordered to take 41/64-inch.

Drills holes up to 1½ inches.

Weight 200 lbs. Code—Faldfee.

No. 200P Drill, same as above, with Tight and Loose Pulleys, 6 Inches in Diameter and 2-Inch Face for Power. Speed 250 R.P.M. Weight 205 lbs. Code—Faldigilia.



CHAMPION COMBINATION AUTOMATIC SELF-FEED AND DOUBLE COMPOUND LEVER-FEED POST DRILL

NO. $200\frac{1}{2}$

The Original Combination Lever and Self-Feed Post Drill

Made with Cut Gears and Ball Bearings

No. 200½ Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Post Drill is the most powerful medium-priced drill built. This "Patented" Double Compound Lever Feed produces at least 80 per cent. more pressure at the point of the Drill Bit than any other Power or Hand Drill manufactured not enjoying this invention. The "Patented" Automatic Self-Feed and Double Compound Link and Rack Lever-Feed are both independent of each other and are changed from one to the other in the fraction of a second. With either feed, the Drill Spindle has instantaneous return of the Drill Bit out of the hole drilled and again instantaneous return on the material for the next hole. This Drill Spindle and Bit is positively always raised up or down while using either feed, by the use of the quick acting Lever. It has two speeds; to change from slow to fast speed or heavy to light work is accomplished by sliding the Gears and requires but an instant. All end friction on this Drill is taken from the Drill Spindle by the use of Ball Bearings, making it a very light and quiet running tool, especially adapted for Blacksmith Shops, Carriage and Wagon Builders' Shops, and Railroad Shops, and is furnished for either Hand, or Hand and Power combined. The Lever makes it especially convenient for wood boring.

SPECIFICATIONS

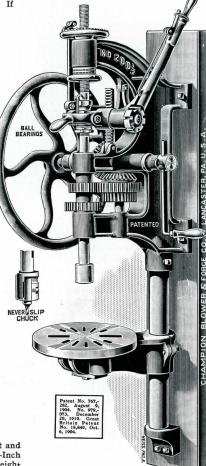
Drills to the center of an 18-inch circle. Spindle $1\frac{1}{4}$ inches in diameter; has up-and-down run of $5\frac{1}{2}$ inches.

Greatest distance between table and spindle 12 inches. Height of drill 55 inches.

Spindle bored like Never Slip Chuck to take in ½-inch Straight Shank Bits. If especially ordered to take 41/64-inch.

Drills holes up to 1½ inches. Weight 260 lbs. Code—Falucha.

No. 200½P Drill, same as above, with Tight and Loose Pulleys, 11 In. in Diam., and 2½-Inch Face for Power. Speed 100 R.P.M. Weight 285 lbs. Code-Falcada.







CHAMPION COMBINATION AUTOMATIC SELF-FEED AND DOUBLE COMPOUND LEVER-FEED POST DRILL

NO. 201

The Original Combination Lever and Self-Feed Post Drill

Made with Cut Gears and Ball Bearings

No. 201 Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Post Drill represents the latest invention in a high pressure Lever-Feed Drill and produces at least 80 per cent. more pressure at the point of the Drill Bit than any other Power or Hand Drill manufactured. The "Patented" Automatic Self-Feed and Double Compound Link and Rack Lever-Feed are both independent of each other and are changed from one to the other in the fraction of a second. With either feed, the Drill Spindle has instantaneous return of the Drill Bit out of the hole drilled and again instantaneous return on the material for the next hole. This Drill Spindle and Bit is always raised up or down while using either feed, by the use of the quick-acting Lever. It has two speeds; to change from slow to fast speed is accomplished by sliding Cut Gears and requires but an instant. All end friction on this Drill is taken from the Drill Spindle by the use of Ball Bearings, making it a very light and quiet running tool, especially adapted for Blacksmiths, Carriage and Wagon Builders and Railroad Shops and is furnished for either hand, or hand and power combined. The Lever makes it especially convenient for wood boring. The Table is raised and lowered by a Rack which is quick in action and can be turned back out of the way.

SPECIFICATIONS

Drills to center of 21-inch circle. Spindle $1\frac{1}{4}$ inches diameter; has up-and-down run of $5\frac{1}{2}$ inches.

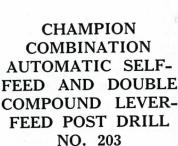
Greatest distance from table to spindle 17 inches. Height of drill 68 inches.

Spindle bored like Never Slip Chuck to take in ½-inch Straight Shank Bits. If specially ordered to take 41/64-inch.

Drills holes up to 1½ inches. Weight 405 lbs. Code-Faldstool. No. 201P Drill, same as above, with Tight and Loose Pulleys, 11 Inches in Diameter, 2½-Inch Face for Power. Speed 100 R.P.M. Weight 430 lbs.

Code—Falgename.

Extra for Wheel Holder Attachment.



The Original Combination Lever and Self-Feed Post Drill

Made with Cut Gears and Ball Bearings

No. 203 Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Post Drill represents the latest invention in a High Power Lever-Feed Drill and produces at least 80 per cent. more pressure at the point of the Drill Bit than any other Power, or Hand and Power Drill manufactured. The Champion "Patented" Automatic Self-Feed and Double Compound Lever-Feed are both independent of each other, and are changed from one to the other in the fraction of a second. With either Lever-Feed or Automatic Self-Feed, the Drill Spindle has instantaneous return of the Drill Bit out of the hole drilled and again instantaneously replacing the bit on the material for drilling the next hole, thus enabling the operator to increase production threefold. The Upright Fly Wheel Shaft runs on frictionless End Thrust Ball Bearings on its lower end and is supplied with a heavy Fly Wheel for keeping up momentum. It has Double Back Cut Gears with two speeds. To change from slow to rever statistic entire construction a powerful Tool, easy of operation, with finest workmanship, making it a very practical Drill for Blacksmiths, Carriage and Wagon Builders, Garages, Railroad and Machine Shops or any place where a strictly high-grade Drill is wanted. The Lever makes it especially convenient for wood boring. The Table is raised and lowered by a Rack which is quick in action and can be turned back out of the way.

Spindle $1\frac{1}{4}$ inches in diameter; has up-and-down run of $5\frac{1}{2}$ inches; Drills holes up to $1\frac{1}{2}$ inches. Greatest distance from table to spindle 19 inches. Height of drill 72 inches.

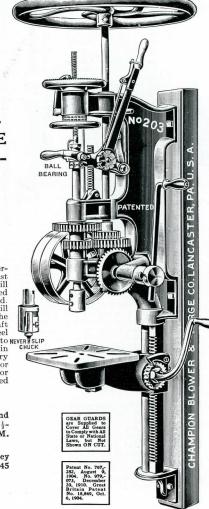
Spindle bored like Champion Never Slip Chuck to take \(\frac{3}{2}\)-inch or 41/64-inch Straight Shank Bits. If specially ordered to take \(\frac{1}{2}\)-inch Bits.

Drills to center of 21-inch circle. Weight 445 lbs. Code-Falisca.

No. 203P Drill, same as above, with Tight and Loose Pulleys, 11 Inches in Diameter and $2\frac{1}{2}$ -Inch Face for Power. Speed 80 R.P.M. Weight 470 lbs. Code—Falke.

No. 203CP Drill, same as above, with Cone Pulley and Cone Countershaft for Power. Weight 545 lbs. Code—Faltarian.

Extra for Wheel Holder Attachment.









NO. 202

The Original Combination Lever and Self-Feed Post Drill Made with Cut Gears and Ball Bearings

No. 202 Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Post Drill represents the greatest invention in a high-power Lever-Feed Drill and produces at least 80 per cent. more pressure at the point of the Drill Bit than any other power, or hand and power drill manufactured. The Self-Feed and Lever-Feed are both independent of each other and are changed from one to the other in the fraction of a second. The Drill Spindle has instantaneous return of the Drill Bit out of the hole drilled and again instantaneously placing Bit on the material for drilling the next hole with either the Lever or Self-Feed, thus enabling the operator to increase the production threefold. The Double Back Cut Gears running the same direction as the crank turns, giving the running of the drill the benefit gained in the momentum of the gears, combined with the heavy Fly-Wheel, gives the Drill powerful momentum; therefore enables the operator to drill holes from the Smallest to the Largest with ease. All spindle friction is taken from this drill by the use of Roller Bearings, therefore giving it ease of operation, which makes it a very practical drill for Blacksmiths, Carriage and Wagon Builders, Garages, Railroad and Machine Shops. Lever makes it especially convenient for Wood Boring. Table is raised and lowered by a Rack which is quick in action and can be turned back out of the way.

SPECIFICATIONS

SPECIFICATIONS

Spindle is 1½ inches in diameter; has up-anddown run of 6 inches.

Drills holes up to 1½ inches.

Drills to center of 22-inch circle.

Greatest distance from table to spindle 20 inches. Height of drill 95 inches.

Spindle bored like Never Slip Chuck to take 41/64-inch Straight Shank Bits. If specially ordered to take ½-inch.

Weight 500 lbs. Code—Falhado.

No. 202P Drill, same as above, with Tight and Loose Pulleys, 11 Inches in Diameter and 2½-Inch Face. Speed 80 R.P.M. For Power and Hand Combined, Wt. 525 lbs.

Code—Fallariaris.

No. 202CP Drill, same as above, with Cone Pulleys and Countershaft, Complete for Power and Hand Combined, Wt. 600 lbs.

Code—Faliekant.

Code—Faliekant.
Extra for Wheel Holder Attachment.

CHAMPION COMBINATION AUTOMATIC SELF-FEED AND DOUBLE COMPOUND LEVER-FEED UPRIGHT

DRILL NO. 2031/2

The Original Combination Lever and Self-Feed Upright Drill

Made with Cut Gears and Ball Bearings

No. 203½ Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Drill is the same as the "Famous" 203 Drill shown on page 65; the only difference is this Drill gives the mechanic the benefit of a Drill that stands solid on its own base with the column and frame cast in one piece, insuring rigidity only found in drills constructed in that manner. The Lever produces at least 80 per cent. more pressure at the point of the Drill Bit than any other Upright Drill manufactured. The Champion "Patented" Automatic Self-Feed and Double Compound Lever-Feed are both independent of each other and are changed from one to the other in the fraction of a second. With either Lever-Feed or Automatic Self-feed the Drill Spindle has instantaneous return of the Drill Bit out of the hole drilled and instantaneous return on the material for drilling the next hole, thus enabling the operator to increase the production threefold. This Drill is supplied with a heavy and specially designed Fly-Wheel to an Upright Shaft that is specially fitted with frictionless End Thrust Ball Bearings for keeping up momentum, making it the lightest running Drill manufactured. It has double Back Cut Gears with two speeds. To change from slow to fast speed, or heavy to light work is accomplished by sliding the cut gears in an instant. This Drill represents in its entire design, construction and workmanship a very powerful tool, making it a very practical Drill for Garages, Blacksmith Shops, Carriage and Wagon Builders, Railroad Shops, Machine Shops, or any place where a strictly high-grade Drill is wanted. No Babbitt is used, the Bearings all being ground out of solid metal. The Lever makes it especially convenient for wood boring. Table is raised and lowered by a Rack which is quick in action and can be turned back out of the way.

Spindle is 1½ inches in diameter; has up-and-down run of 5½ inches; Drills holes up to 1½ inches. Drills to center of 21-inch circle. Greatest distance from table to spindle 20 inches. Height of drill 80 inches. Spindle bored like Never Slip Chuck to take 41/64-inch Straight Shank Bits. If specially ordered to take ½-inch.
Weight 610 lbs. Code—Faltasinha.
No. 203½P Drill, same as above, with Tight and Loose Pulleys, 11 Inches in Diameter, 2½-

State or National Laws, but Not Shown ON CUT.

Inch Face. Speed 80 R.P.M. For Power and Hand Combined.

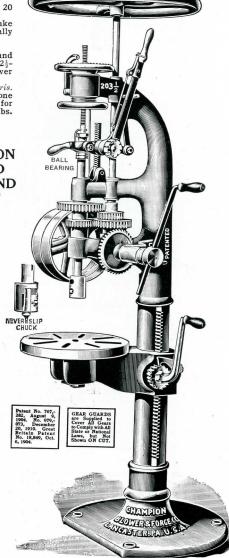
Weight 635 lbs. Code—Faltenlos.

No. 203½CP Drill, same as above, with Cone Pulleys and Countershaft, Complete for Power and Hand Combined, Weight 725 lbs.

Code—Faltasteis.

Extra for Wheel Holder Attachment.

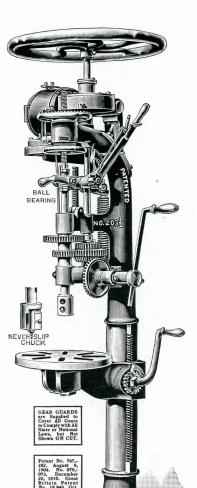
No. 205 Drill, same as No. 203¹₂, with both Drilling Table and Vise permanently attached. Weight 750 lbs. Code—Falco.











CHAMPION COMBINATION AUTOMATIC SELF-FEED AND DOUBLE COMPOUND LEVER-FEED ELECTRICALLY DRIVEN UPRIGHT DRILL

NO. $203\frac{1}{2}E$

The Original Combination Lever and Self-Feed Upright Drill

Made with Cut Gears and Ball Bearings

No. $203\frac{1}{2}$ E Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Electrically Driven Upright Drill represents the $203\frac{1}{2}$ Champion "Patented" Double Compound Link and Oscillating Rack and Pinion Lever-Feed as found on page 66, which enables the operator to drill holes up to $1\frac{1}{4}$ inches.

In connection with all its Electrically Driven advantages, this Drill can be operated by attaching the crank and drawing a sliding key should the Electric Current be interrupted. The change from Automatic Self-Feed requires but the fraction of a second with the Drill Bit returning instantaneous for drilling the next hole.

The motor is our latest design with the Champion Standard Worm Drive connected to the Drill, thus making the Drive not only positively noiseless, but powerful and durable, with same worm and pitch that is used to drive automobile trucks with a capacity of five tons.

Before ordering ask your electric current plant if your current is direct or alternating. If Direct Current, get the voltage only. If Alternating Current, get the cycles or alternations, phase and voltage.

No. 203½E Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Electrically Driven Upright Drill, Drills to Center of a 21-Inch Circle, Drills Holes from 0 to 1½ Inches, Weight 760 lbs. Code—Fapelar.

Extra for Wheel Holder Attachment.

CHAMPION COMBINATION
AUTOMATIC SELF-FEED
AND DOUBLE COMPOUND
LEVER-FEED
ELECTRICALLY DRIVEN
POST DRILL
NO. 203E

The Original Combination Lever and Self-Feed Post Drill

Made with Cut Gears and Ball Bearings

No. 203E Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Electrically Driven Post Drill represents the No. 203 Champion "Patented" Double Compound Link and Oscillating Rack and Pinion Lever-Feed, as found on page 65, together with the heavy and rigid cast iron post, enables the operator to drill holes up to 14 inches.

This Drill with all its electrically driven advantages can, if necessary, be operated by a crank by sliding a key should the Electric Current service be interrupted at any time.

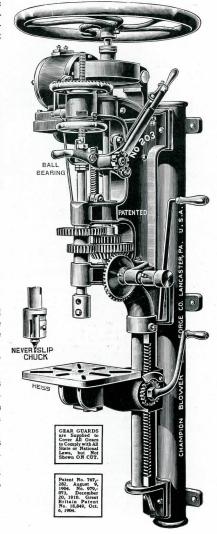
To change from Lever to Automatic Self-Feed requires but the fraction of a second. The Drill Bit returns instantaneous for drilling next hole, therefore no time is lost in turning the Feed Screw back.

The Motor is our latest design with Champion Standard Worm Drive connected to the Drill, thus making the drill not only positively noiseless, but powerful and durable, having the same worm and pitch as is used to drive automobile trucks with a carrying capacity of five tons.

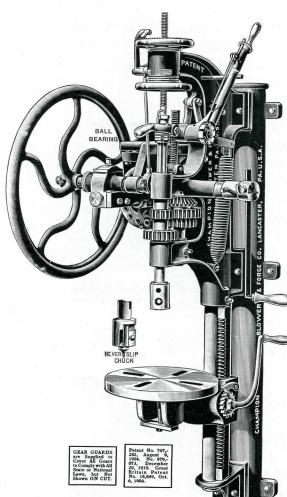
Before ordering ask your electric current plant if your current is direct or alternating. If Direct Current, get the voltage only. If Alternating Current, get the cycles or alternations, phase and voltage.

No. 203E Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Electrically Driven Post Drill, Drills to Center of a 21-Inch Circle, Drills Holes from 0 to 1½ Ins., Wt. 690 lbs. Code—Faedera.

Extra for Wheel Holder Attachment.







The Original Combination Lever and Self-Feed Post Drill

Made with Cut Gears and **Ball Bearings**

No. 200½E Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Electrically Driven Post Drill represents the Champion "Patented" Double Compound Link and Oscillating Rack and Pinion Lever-Feed and Automatic Self-Feed with rigid cast iron post, enables the workman to drill holes up to ½ inch. To change from Lever to Automatic Self-Feed requires but a fraction of a second. Drill Bit returns instantaneous for drilling next hole, therefore no time is lost in turning feed screw back. Drill has Double Back Cut Gears which are changed from fast to slow speed by sliding gears. Motor is our latest design with Champion Standard Worm Drive connected to Drill, thus making drive not only positively noiseless, but powerful and durable. Drill will bore to center of 18-inch circle. Spindle is 1½ ins. in diameter. Has up-and-down run of 4 ins. Greatest distance from table to spindle 12 ins. Height of drill 55 inches. Spindle is bored like Champion Never Slip Chuck to take in ½-in. straight shank drill bits. If specially ordered to take 41/64-in. Drills holes up to ½ in.

Before ordering ask your Electric Current Plant if your current is Direct or Alternating. If Direct Current, get voltage only. If Alternating Current, get cycles or alternations, phase and voltage.

No. 200½E Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Electrically Driven Post Drill, Drills to Center of 18-Inch Circle, Weight 460 lbs. Code-Papas.

CHAMPION COMBINATION AUTOMATIC SELF-FEED AND DOUBLE COMPOUND LEVER-FEED ELECTRICALLY DRIVEN POST DRILL NO. 201E

The Original Combination Lever and Self-Feed Post Drill Made with Cut Gears and Ball Bearings

No. 201E Champion "Patented" Combination Automatic Self-Feed Double Compound Lever-Feed Electrically Driven Post Drill represents the No. 201 Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Post Drill shown on page 65, and a rigid east iron post, with Electric Motor of our latest design with Champion Standard Worm Drive connected to Drill, thus making drive noiseless, powerful and durable.

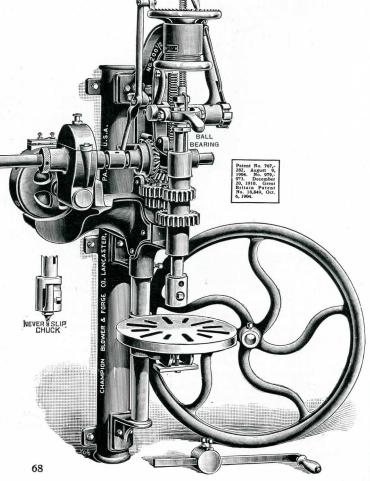
The Champion "Patented" Double Compound Link, Oscillating Rack and Pinion Lever-Feed enables the workman to drill holes up to 1½ inches with this Drill. Before ordering ask your electric current plant if current is Direct or Alternating. If Direct, get voltage only. If Alternating, get cyclage or alternations, phase and voltage.

To. 201E Champion "Patented" Combination Automatic Self-Feed and Double Compound Lever-Feed Electrically Driven Post Drill, Drills to the Center of a 21-Inch Circle, Drills Holes from 0 to $1\frac{1}{2}$ Inches, Weight 655 lbs. Code—Faper.

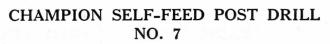
Extra for Wheel Holder Attachment.

CHAMPION COMBINATION AUTOMATIC SELF-FEED AND DOUBLE COMPOUND LEVER-FEED ELECTRICALLY DRIVEN POST DRILL

NO. $200\frac{1}{2}E$







Made with Cut Gears and Ball Bearings

No. 7 Champion Cut-Geared Automatic Self-Feed Post Drill contains modern improvements which no user of a Drill can afford to do without, where time and labor is a consideration.

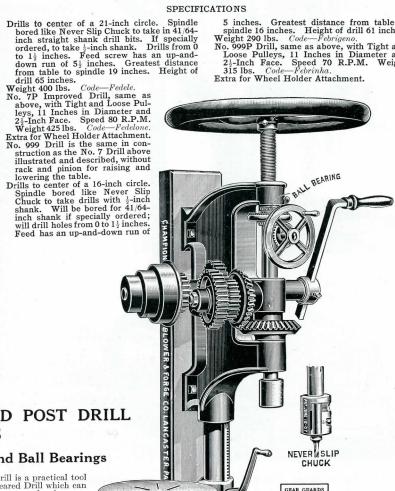
The Improved Quick-Return or Hand-Feed Wheel is a most important feature for both getting the bit out of the work quickly, or to use as a hand-feed for drilling holes up to ½ inch.

The rack for raising or lowering the table is very convenient, quick in action and easy to work. The table always remains where it is stopped. It will not stick and throw the drill and table out of line. The table can be turned from under the drill spindle the same as if no rack was there.

With the power obtained by the double gears for quick and slow speed, for light and heavy work, which is changed in an instant in connection with the new improvements applied to this Drill, no drill except the No. 203 Champion "Patented" Combined Lever and Automatic Self-Feed Drills was ever placed on the market that would do the same variety of work as quickly.

SPECIFICATIONS

5 inches. Greatest distance from table to spindle 16 inches. Height of drill 61 inches. Weight 290 lbs. Code-Febrigeno. No. 999P Drill, same as above, with Tight and Loose Pulleys, 11 Inches in Diameter and $2\frac{1}{2}$ -Inch Face. Speed 70 R.P.M. Weight 315 lbs. Code-Febrinha. Extra for Wheel Holder Attachment.



CHAMPION SELF-FEED POST DRILL NO. 25

Made with Cut Gears and Ball Bearings

No. 25 Champion Automatic Self-Feed Post Drill is a practical tool for all kinds of drilling, a single or double back-geared Drill which can be changed from one to the other instantly. Gears revolve in same direction that crank is turned, which adds to light running and momentum of gears. Automatic Self-Feed is complete and practical; Hand-Feed Wheel, or Quick-Return Wheel, meets many demands for quick work, for Machine Shops, Carriage Builders, Railroad Shops, Blacksmith Shops, etc. Rack for raising or lowering table is very convenient, quick in action and easy to work. Table always remains where it is stopped, and can be turned from under drill spindle, out of the way, same as if no rack was there.

SPECIFICATIONS

Its spindle is bored like Never Slip Chuck to take in 41/64-inch straight shank drill bits. If specially ordered, to take ½-inch. Drills from 0 to 1½-inch holes, to center of 22-inch circle; feed screw has up-and-down run of 6½ inches. Greatest distance from table to spindle 19 inches. Height of drill 72 inches. Weight 420 lbs. *Code—Feilspan.*

No. 25P Drill, with Tight and Loose

Pulleys, 11 Inches in Diameter and 24-Inch Face. Speed 80 R.P.M. for Power and Hand, Wt. 445 lbs.

Code—Felpilla.

No. 25CP Drill, with Cone Pulley and Countershaft, Complete for Power and Hand, Weight 520 lbs.

Code—Feilnadel.

Extra for Wheel Holder Attachment.







CHAMPION 22-INCH BACK-GEARED UPRIGHT POWER DRILL WITH LEVER, WHEEL, POWER FEED AND AUTOMATIC STOP



The 22-Inch Back-Geared Power Drill combines all the high-grade features of a strictly first class Machine Shop Power Drill. It is constructed to withstand heavy work, as well as being adapted for light and rapid drilling, making the best all around drill on the market for general repair work or manufacturing purposes.

This Drill has been especially designed for reboring cylinders on Ford Motor Cars, as well as Fordson Tractor cylinders, as the spindle has an 11-inch up-and-down run, and with this exceptionally long traverse of the spindle enables the user to rebore cylinders from top to bottom of practically all makes of Motor Car Cylinders on one setting, thus enabling the operator to do a class of work which heretofore required a 25-inch Drill, meaning an expenditure of almost double the cost of this Drill.

The brace being placed between the center of cone pulleys makes a rigid connection from top of drill to base, eliminating vibration.

The Crown Gear runs in a Phosphor Bronze Bushing of the highest grade, and the Crown Gear is also equipped with an End Thrust Ball Bearing, which reduces the friction and eliminates the wearing of upper end of Crown Gear Bearing, thus insuring easier running and durability.

The Spindle is graduated and is ground to a micrometer fit and equipped with frictionless ball bearings. All Gears are machine cut scientifically accurate, which insures silent

running and long life. The long split bearings on top of horizontal shaft allow for taking up wear when necessary. The Drill is made with Planed Square Base, having T slots to enable heavy work to be held firmly to base. The base is constructed with a pocket on each side and front to retain oil or drippings from tool lubrication. The lower cone pulley bearings are equipped with ring oilers—another exclusive Champion feature.

The change from plain to back-geared Drill is done in an instant by a movement of the eccentric shaft.

Has eight speeds with three distinct and complete feeds: Power Feed, Hand Wheel Feed and Lever Feed. Has Automatic Stop with quick-return lever giving rapid movement to Spindle. Spindle is counterbalanced by special cable chain attached to weight in column. Has quick-acting screw for raising and lowering table. Drills with perfect accuracy from smallest holes up to $1\frac{1}{2}$ -inch.

SPECIFICATIONS

Height of Drill	n.
Distance between table and spindle $27\frac{1}{2}$ in	n
Distance between spindle and base 43 in	n
Distance from column to center of spindle, 11 ½ is	n.
Diameter of column	n.
Traverse of table on column21 is	n,
Diameter of table18 is	n.

Diameter of spindle $1\frac{1}{4}$ in	•
Traverse of spindle11 in	•
The Power Feeds per revolution of spindle	
for the various cone steps on power feed, .004, .012, .020)
Size of tight and loose pulleys $8 \times 2\frac{3}{4}$ in	
Hole in spindle bored to fit Morse taper No. 4.	

$7\frac{1}{2}$, 9 x 2 in. face. 300 R.P.M. 19 $\frac{1}{2}$ x 47 in.
192 x 47 ms
1050 lbs.



CHAMPION 21-INCH BACK-GEARED UPRIGHT POWER DRILL WITH LEVER, WHEEL, POWER FEED AND AUTOMATIC STOP

THE NEW IMPROVED CHAMPION 21-INCH BACK-GEARED POWER DRILL combines all modern features, in many ways excels the higher-priced drills, and is the biggest value in America. Constructed to withstand heavy work, as well as being adapted for light, rapid drilling. Built to take in wide range of work, making it the best all-around machine shop, manufacturing or garage drill on the market for general work.

The crown gear $6\frac{7}{8}$ inches in diameter and 4-inch diameter pinion are larger and heavier than usually found on drills of this size, and all gears are generated scientifically accurate, insuring silent running and long life.

The spindle is carbon steel, ground to a micrometer fit, graduated and equipped with frictionless ball bearings. In addition to ball bearings in the spindle thrust, this drill has ball bearing under the crown gear. These thrust ball bearings all equipped with retainers, packed with grease, that keep the walls automatically oiled three months, and with the bronze bushing in the head will outwear any other drill on the market.

The drill base is bored out and the column pressed in, accurately aligning the base with the spindle. The table is aligned perfectly with the spindle and the table arm is clamped with two clamps instead of one, insuring a rigid table, so accurate work can be done.

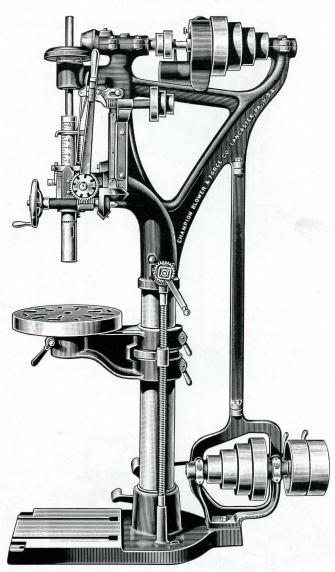
The brace between the top and bottom countershaft stiffens the drill, so that when the heaviest work is done, both the upper and lower cone pulleys are held rigidly in position.

The top bearing is 7 inches long and constructed so that wear can be taken up when necessary. The lower cone pulley bearings are equipped with ring oilers—another exclusive Champion feature.

Has three feeds—lever feed, wheel feed and power feed; with three speeds on the power feed, eight spindle speeds—changed from plain drill to back-geared drill by merely sliding the back gears in with lever attached.

The automatic stop will knock off the power feed at any desired depth; the spindle being graduated so that any hole 12 inches deep down to any fraction of an inch can be drilled without measuring the depth of the hole.

Quick-return handle gives rapid movement to the spindle. The spindle is counterbalanced with weight in hollow column, connected by cable chain all enclosed. Has quick-acting serew to raise and lower the table. The gears are covered with guards and worm gear on power feed runs in a continuous bath of oil.



This drill is adapted for automobile repair shops as it will rebore any type or size of automobile or tractor cylinder with one setting of the motor.

SPECIFICATIONS

Back Geared, Power Feed and Automatic Stop. Swings to center of $21\frac{1}{2}$ -inch circle. Height of drill 77 inches. Column diameter $5\frac{1}{4}$ inches.

Table diameter 16 inches. Vertical travel on column 21 inches. Spindle diameter in sleeve 1-7/16 inches.

Spindle travel 12 inches.

Distance between table and spindle 27 inches.

Distance between spindle and base 43 inches. Distance from column to center of spindle 10³/₄ inches.

Power Feeds per revolution of spindle for various cone steps on power feed .002, .005, .008.

Size of tight and loose pulleys $8 \times 2\frac{3}{4}$ inches. Size of cone pulleys (4-step) 4, $5\frac{3}{4}$, $7\frac{1}{2}$, $9 \times 2\text{-inch}$ face.

Speed of driving pulley 300 R.P.M.

Hole in spindle bored to fit No. 4 Morse Taper. Base has T slots.

Three distinct complete feeds—power feed, wheel feed and lever feed.

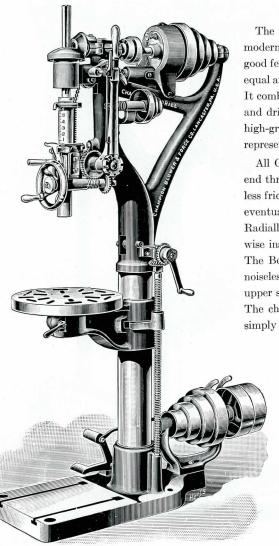
Spindle speeds—8 with use of back gears.
Capacity—drills 0 to 1½ inches.
Gears, diameter cf crown gear 6¼ inches.
Pinion, diameter of bevel pinion 4 inches.
Pitch of crown gear and pinion gear 6. Crown gear 40 teeth. Pinion gear 21 teeth.
Bearings split on upper shaft are 7 inches long.
Phosphor bronze bearings in head.
Floor space 16 x 46 inches.
H₂P. required—1 H.P.
Weight 915 lbs. Code—Figlin.





CHAMPION 20-INCH BACK-GEARED UPRIGHT POWER DRILL WITH LEVER, WHEEL, POWER FEED AND AUTOMATIC STOP

AN EXCLUSIVE MACHINE SHOP POWER DRILL



The Champion 20-inch Upright Power Drill is the most thoroughly modern and up-to-date Power Drill manufactured, combining all the good features that a machine of its kind ought to have; in every respect equal and in many respects superior to any Drill of its size on the market. It combines simplicity and speed in operation with strength and rigidity and drills with perfect accuracy holes up to $1\frac{1}{2}$ inches. It is a strictly high-grade Power Drill with the very best material and workmanship represented in its entire construction.

All Gears are machine cut. The Crown Gear runs on a high-grade end thrust Ball Bearing which not only allows this gear to operate with less friction but also avoids the usual wear on babbitted bearings which eventually causes this gear to incorrectly mesh with the pinion. Radially the crown gear runs in a phosphor-bronze bushing which likewise insures longer life to the wearing qualities of this important gear. The Bevel Gears are all planed, guaranteeing a perfectly smooth and noiseless running drill. The Bearings are large and powerful. The upper shaft has split bearings to take up the customary wear and tear. The change from plain to Back-Geared Drill is done in an instant by simply sliding the gears.

The Champion 20-inch Back-Geared Upright Power Drill has eight speeds with three (3) distinct and complete feeds—Power-, Wheel-, and Lever-Feed.

It is supplied with all the graduated and automatic features found on drills costing ten times the amount. The spindle and sleeve are ground and counter-balanced by a weight in the hollow column.

This Drill has screw for raising and lowering the table, which is very convenient and quick in action with table firmly remaining where it is stopped. It is the most accurate and best finished Power Drill that human hands can manufacture.

Stule $Weight$	Code	$Style \ Weight$	Code
20-Inch, Back-Geared, lever, wheel and power feed; automatic stop and square base	Feidhar	20-Inch, Plain lever and wheel feed; automatic stop and square base	Feim Feimar
20-Inch, Plain lever, wheel and power feed; auto-	Feid	20-men, i lam level leed and square sust it.	

DIMENSIONS OF THE CHAMPION 20-INCH POWER DRILL

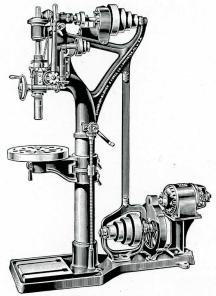
Distance between table and spindle27 in. Distance between spindle and base42 \(\frac{1}{4} \) in.	Size of cone pulleys $(4-\text{step})$ 4 , $5\frac{3}{4}$, $7\frac{1}{2}$, $9 \times 2-\text{in.}$ face. Speed of driving pulleys 300 R.P.M. Floor space required 16 x 46 in. Horsepower required 1 Hole in spindle bored to fit Morse Taper No. 4.

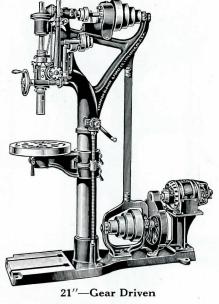


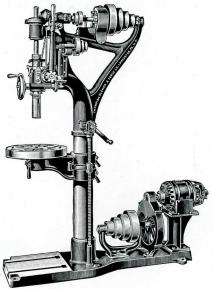




CHAMPION BACK-GEARED ELECTRICALLY DRIVEN UPRIGHT POWER DRILLS







22"--Gear Driven

20"-Gear Driven

Champion 22-Inch, 21-Inch and 20-Inch Back-Geared Electrically Driven Upright Power Drills represent in every detail of construction the 22-Inch, 21-Inch and 20-Inch Drills as shown on pages 70, 71 and 72.

Supplied with a One Horsepower Motor, which can be placed either on a sub-base at the bottom of the drill, 13 inches from the floor, thereby keeping it free from dirt and dampness, geared to the drive shaft of the drill with steel cut pinion and gear; or can be furnished on a bracket at the top of the drill in such a position as to give a long belt between the motor and the drive pulley on the drill.

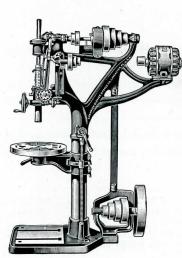
These Drills are supplied with safety starting switch attached at a convenient place in order that the operator can start or stop the drill without changing his position.

By referring to the description and dimensions of the 22-Inch, 21-Inch and 20-Inch Drills on the pages given above, it will be found that these drills are very practical and cover a wide range of work.

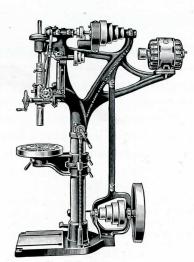
In ordering any of these drills state whether you desire the drill belt driven or gear driven; belt driven always furnished unless otherwise ordered; also advise whether your current is Direct or Alternating, and the Voltage—if alternating, the phase and cycles.

Style Weight Code

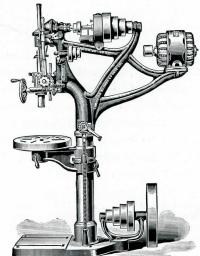
	Style Weight	Code
22-Inch Back-Geared Electrically Driven Upright Power Drill, as shown on page 70, equipped with One		
Horsepower Motor Belt	Driven 1200 lbs	 Fiedmast
22-Inch Back-Geared Electrically Driven Upright Power Drill, as shown on page 70, equipped with One		
Horsenower Motor	r Driven 1200 lbs	. Finjan
21-Inch Back-Geared Electrically Driven Upright Power Drill, as shown on page 71, equipped with One_		
Horsepower Motor Belt	Driven 1150 lbs	 Figlinos
21-Inch Back-Geared Electrically Driven Upright Power Drill, as shown on page 71, equipped with One		
Horsepower Motor	r Driven 1150 lbs	 Finiront
20-Inch Back-Geared Electrically Driven Upright Power Drill, as shown on page 72, equipped with One		0.12
Horsepower MotorBelt	Driven 1050 lbs	 Fiedpost
20-Inch Back-Geared Electrically Driven Upright Power Drill, as shown on page 72, equipped with One		
Horsepower Motor	r Driven 1050 lbs	 Finiriez



22"-Belt Driven



21"-Belt Driven 73



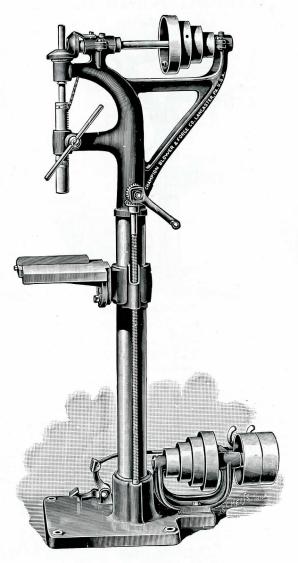
20"-Belt Driven







THE CHAMPION 14-INCH UPRIGHT POWER DRILL



The Champion 14-Inch Upright Power Drill is a gear-driven drill of the best and most improved construction. It combines the simplicity, speed and ease of operation of a sensitive drill with extreme power not usually found on drills of this kind.

All bevelled gears are planed, guaranteeing a perfect and smooth running drill. The bearings are large and powerful, the upper bearing being split to take up wear when necessary. The spindle made of high carbon steel is graduated, ground and fitted throughout with ball bearings, and is counterbalanced by a weight in the hollow column.

The table is tilting and can be clamped permanently at any angle and with the angular bracket makes it very convenient for complicated work. It has a screw for raising and lowering the table, which is quick acting, the table remaining firmly where it is placed. All gears are carefully guarded.

SPECIFICATIONS

Height of Drill	Size of table
Distance between table and spindle34 in.	Diameter of spi
Distance between spindle and base 45 in.	Traverse of spir
Distance from column to center of spindle	Size of tight and
$7\frac{1}{4}$ in.	Size of cone pul
Diameter of Column 4 in.	(four steps).
Traverse of Table on Column27 in.	

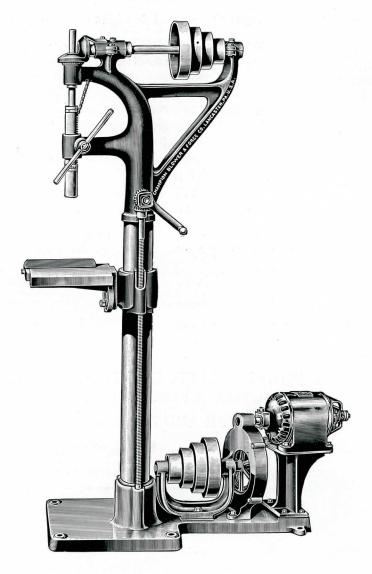
DI DOMI IOMA	
of table11 x 11 in.	Speed of driving pulleys225 R.P.M.
eter of spindle $\frac{7}{8}$ in.	Floor space
rse of spindle $6\frac{1}{2}$ in.	Capacity ³ in.
of tight and loose pulleys $7 \times 2\frac{1}{2}$ in.	Horsepower required 1 H.P.
of cone pulley ir steps) $7\frac{15}{16} - 6\frac{15}{16} - 5\frac{1}{8} - 3\frac{13}{16} \times 1\frac{5}{8}$ face.	Hole in the spindle bored to fit No. 2 Morse Taper.
	Weight 425 lbs. Code—Findos.







CHAMPION 14-INCH ELECTRICALLY DRIVEN UPRIGHT POWER DRILL



The Champion 14-Inch Electrically Driven Upright Power Drill is the 14-Inch Upright Drill shown on page 74, with a One Horsepower Motor placed at the base of the drill, geared to the drive shaft with steel cut pinion and gear.

The Drill is supplied with safety starting switch located at a convenient place so that the operator can start and stop the drill without changing his position.

In all other respects the drill is similar to the 14-Inch Drill shown on the page given above and will be found to be an extremely practical drill for the range of work which it will do as given on page 74.

In ordering this drill please state whether your current is direct or alternating and the voltage, and if alternating the cycles and phase.

14-Inch Electrically Driven Upright Power Drill, Weight 650 lbs. Code-Fiodoster.





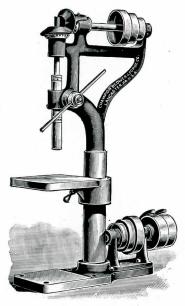


CHAMPION POWER BENCH DRILL

NO. 0

Made with Ball Bearings

For Light and Rapid Drilling



The Champion Power Bench Drill represents a high-grade, powerful and well-built Power Bench Drill with every detail for completeness in design and workmanship taken into consideration, in connection with the dimensions given below. The top of the drill base is planed off to use as a table when the regular drill table is turned to one side, thus giving a space of 23 inches between the chuck and base-table. The upper cone pulley is between two bearings, thus equalizing the strain and making the drill more powerful. The countershaft is supplied with a belt shift on the tight and loose pulley and the feed lever is manipulated with a spring arrangement to at all times automatically keep the lever where it is placed.

This Drill is particularly adapted for garages, pattern makers and machine shops where light, accurate and rapid drilling is done.

SPECIFICATIONS

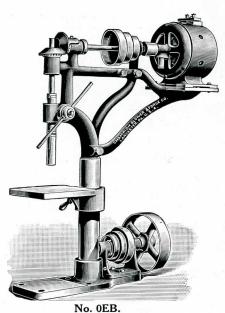
Drills to center of a 10-inch circle. Bores holes up to 9/16 inch in diameter. Up-and-down run of spindle $3\frac{3}{4}$ inches. Up-and-down run of table $14\frac{3}{4}$ inches. Greatest distance from table to spindle $17\frac{1}{2}$ inches. Greatest distance from planed base to spindle 23 inches. Diameter of column $2\frac{1}{2}$ inches.

Size of tight and loose pulleys $4 \times 1\frac{9}{4}$ inches. Size of largest cone pulley $4\frac{1}{2} \times 1\frac{3}{8}$ inches. Size of smallest cone pulley $3 \times 1\frac{3}{8}$ inches. Spindle speeds 330-500-750 R.P.M. Spindle is bored with No. 1 Morse taper hole; if specially ordered with No. 2 Morse taper hole. Height $38\frac{3}{4}$ inches. Weight 110 pounds. Code—Forkless

CHAMPION POWER BENCH DRILL WITH ELECTRIC MOTOR ATTACHMENT NO. 0EB AND NO. 0EG

Made with Ball Bearings

For Light and Rapid Drilling



having a long belt between motor and driving pulley on the drill countershaft, the No. 0EG having a direct belt connection between the top cone pulley and the cone pulley on the motor shaft supported by an outer bearing—making both of them very practical for Garages, Pattern Makers and Machine Shops where light and rapid work is done.

Description and dimension of these drills are the

Champion Bench Electric Driven Drills represent the No. 0 Champion Power Bench Drill shown above, with electric motor placed in two positions; the No. 0EB

Description and dimension of these drills are the same as those found on the No. 0 Champion Power Bench Drill.

Before ordering this drill, find whether the current is direct or alternating; if direct, get the voltage only—if alternating, get the cycles, phase and voltage.

No. 0EB Drill. Weight 195 lbs. Code—Fapo.

No. 0EG Drill. Weight 190 lbs. Code—Faport.



76





CHAMPION SENSITIVE BENCH DRILL NO. 50

For Light and Rapid Drilling

Made with Ball Bearings

The Champion Sensitive Bench Drill is substantial, strong and well built, and is particularly adapted for light, accurate and rapid drilling, in garages, pattern and machine shops. This drill is driven by belt and with the aid of cone pulleys two separate and distinct speeds can be furnished. The countershaft is furnished with a belt shifter on the tight and loose pulley and the feed lever can be returned without affecting the position of the bit by a patented automatic device in the feed lever hub. This drill is made in the best possible manner and guaranteed in every respect.

SPECIFICATIONS

Double Flange Top Cone.

Table swinging 180 degrees horizontally. End Thrust Ball Bearing.

Adjustable Spindle Stop.

Greatest distance from spindle to table 71/2

Up-and-down movement of the spindle 2½ inches.

Up-and-down movement of the table 7 inches.

Diameter of table 8 inches.

Drills to center of 10-inch circle. Drilling capacity ½ inch.

Size of tight and loose pulley $4 \times 1\frac{1}{2}$ inches.

Speed of driving pulley 550 R.P.M.

Extreme height 27½ inches.

Weight 75 lbs., Fitted Complete with Champion Chuck. Code-Fechares.

Less Chuck with Taper Spindle.

No. 51 Sensitive Upright Floor Drill is the No. 50 Drill with Column on which the table arm can slide up and down.

SPECIFICATIONS

Table Swings Full Circle.

Greatest distance from spindle to table 281

Up-and-down movement of the table 201

Extreme height 60 inches.

Weight 125 lbs., fitted with Adjustable Chuck. Code-Fenkist.

CHAMPION MOTOR-DRIVEN SENSITIVE BENCH DRILL

Furnished complete with Motor, Switch, Attachment Cord and Plug, Belt, and Champion Three-Jaw Chuck to take straight-shank drills from 0 to 1/2 inch.

For Light and Rapid Drilling

Made with Ball Bearings

The Champion No. 50E Motor-Driven Sensitive Bench Drill is an exceptionally compact and stocky Drill, especially useful in Garages, Pattern and Machine Shops.

Equipped with 4 H.P. Motor at 1750 R.P.M., driving a two-step cone pulley, giving two speeds of the spindle, and is of ample size to drill holes up to the full capacity of the drill.

Furnished as a complete unit ready to connect to a lamp socket, so that further equipment or expense is unnecessary to use this drill. All parts accurately machined and guaranteed.

SPECIFICATIONS

swings 180 degrees hori-Table zontally.

Spindle Speed 900 R.P.M. and 2100 R.P.M.

Adjustable Spindle Stop. Greatest distance from spindle to

Up-and-down movement of the spin-dle $2\frac{1}{8}$ ''.

Up-and-down movement of the table

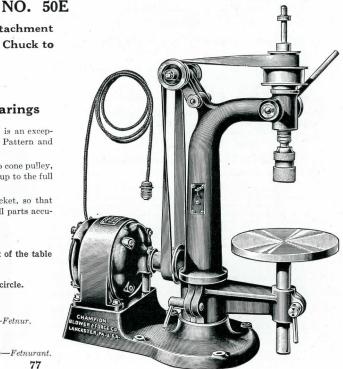
Diameter of table 8". Drills to center of 101'' circle. Drilling capacity 1-inch.

Extreme height 26".

Weight 105 lbs. Code-Fetnur.

Pedestal for No. 50E Electric Drill. Height 26". Weight 50 lbs.

Code—Fetnurant.



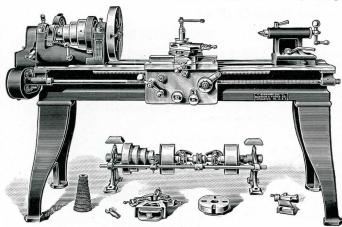






LANCASTER ENGINE LATHE

Fitted with Four-Step Cone Pulley, Back Gears, Positive Geared Feed, Automatic Longitudinal and Power Cross Feed, Compound Rest and Chasing Dial



DETAILED DIMENSIONS 13-INCH LATHE

Swing over Shear
Swing over Shear
Swing over Carriage
Swing over Carriage
Front Spindle Bearing
Rear Spindle Bearing $1\frac{1}{2}$ inches in diameter, $2\frac{3}{8}$ inches long.
Hole through Spindle
Spindle Nose
Taper of Centers
Tail Spindle
Tail Spindle
Cone Pulley diameters on Lathe
Width of Belt
Ratio of Back Gearing
Spindle Speeds
Compound Rest Travel
Cone Pulley diameters on Countershaft $8\frac{1}{4}$ -7- $5\frac{3}{4}$ - $4\frac{1}{2}$ inches.
Countershaft Driving Pulley
Countershaft Speed
Size of tools $\frac{1}{2}$ inch x $1\frac{1}{8}$ inches.
13-Inch Engine Lathe, with five-foot Bed, Weight 1100 lbs.
Code-Ferabors.
13-Inch Engine Lathe, with six-foot Bed, Weight 1210 lbs.
Code-Feraborer.
13-Inch Engine Lathe, with eight-foot Bed, Weight 1375 lbs.
Code-Feraborest.
13-Inch Engine Lathe, with ten-foot Bed, Weight 1550 lbs.
Code—Feraboramer.

THE LANCASTER ELECTRIC-DRIVEN ENGINE LATHE

Fitted with Four-Step Cone Pulley, Back Gears, Positive Geared Feed, Automatic Longitudinal and Power Cross Feed, Compound Rest and Chasing Dial

Made in 13- and 16-Inch Sizes

Illustration shows Lancaster Engine Lathe equipped with Electric

Illustration shows Lancaster Engine Latine equipped with Electric Motor Drive.

The cast iron bracket which carries both the countershaft and motor is firmly attached to the lathe bed, and acts as a tightener for the belt between the lathe cone pulley and countershaft, and the motor can be adjusted on the bracket to tighten the belt between the motor and driving pulleys on the countershaft.

The starting, stopping and reversing of the lathe is controlled by a horizontal bar, as shown on cut. The cross belt handles the reverse direction of the lathe spindle.

16-Inch Engine Lathe, Motor Driven, with six-foot Bed, Weight 2040

16-Inch Engine Lathe, Motor Driven, with eight-foot Bed, Weight 2040
16-Inch Engine Lathe, Motor Driven, with eight-foot Bed, Weight 2150
1bs. Code—Freakest.
16-Inch Engine Lathe, Motor Driven, with ten-foot Bed, Weight 2455

lbs. Code—Freakene.
13-Inch Engine Lathe, Motor Driven, with five-foot Bed, Weight 1300 lbs. Code—Feratera.
13-Inch Engine Lathe, Motor Driven, with six-foot Bed, Weight 1400

13-Inch Engine Lathe, Motor Driven, with eight-foot Bed, Weight 1600

Ibs. Code—Feraterest.

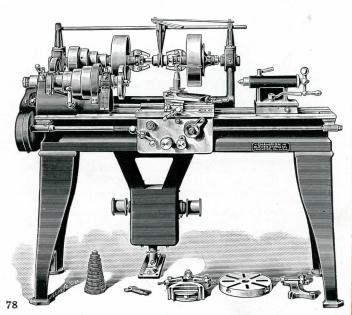
13-Inch Engine Lathe, Motor Driven, with ten-foot Bed, Weight 1800
lbs. Code—Feraterame.

Made in 13- and 16-Inch Sizes

Lancaster Engine Lathes are constructed for garage, machine and general repair shops, built to take care of all jobs that come into such shops. Powerful, accurate and durable—manufactured to jigs and gauges, and all parts are interchangeable. The Lead Screw is made of special high-grade carbon steel. All sliding surfaces are accurately scraped to a bearing. The spindle and all round parts are ground for accuracy. Three changes of feed are secured by moving a handle to any one of the three locations. The gears are easily changed for cutting different threads. Indexed to cut standard threads from 4 to 40 either right or left, including 11½-inch pipe thread, and by compounding the gears many other threads can be chased. Equipped with compound rest, follower and steady rests, change gears, large and small face plates, double friction countershaft and wrenches, and all gears are carefully guarded. The Bed is stout and rigid, with cross braces cast at short intervals. Has three V's and one flat way to take the head stock, tail stock and carriage. The Rack is steel and cut from a solid bar. The Head Stock is massive, the spindle is 60-point carbon crucible spindle steel, accurately ground. Bearings are high-grade phosphor bronze, carefully scraped to fit the spindle. The Tail Stock is offset to allow the compound rest to swing parallel to the bed. The Carriage and Apron are strong and with deep bridges each cast in one piece. The Compound Rest is graduated in degrees.

DETAILED DIMENSIONS 16-INCH LATHE

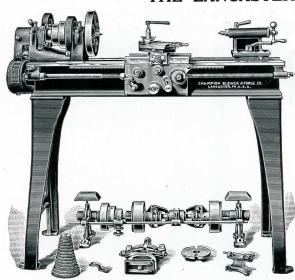
Swing over Shear
Swing over Compound Rest
Swing over Carriage
Distance between Centers—6-Ft. Bed
Front Spindle Bearing
Rear Spindle Bearing
Hole through Spindle
Spindle Nose
Taper of Centers
Tail Spindle
Cone Pulley diameters on Lathe
Cone Pulley diameters on Countershaft $8\frac{7}{8}$, $7\frac{9}{16}$, $6\frac{1}{8}$, $4\frac{3}{4}$ inches.
Width of Belt2 inches.
Ratio of Back Gearing
Spindle Speeds
Compound Rest Travel 3 inches.
Countershaft Driving Pulley9 x 3½ inches.
Countershaft Speed
Size of Tools $1\frac{1}{4}$ inches $x \frac{5}{8}$ inch.
16-Inch Engine Lathe with six-foot Bed, Weight 1580 lbs.
Code-Firmera.
16-Inch Engine Lathe with eight-foot Bed, Weight 1775 lbs.
Code—Firmesor.
16-Inch Engine Lathe with ten-foot Bed, Weight 1920 lbs.
Code-Firmerest.







THE LANCASTER 10-INCH ENGINE LATHE



THE LANCASTER 10-INCH BENCH LATHE

Fitted with Three-Step Cone Pulleys, Back Gears, Automatic Longitudinal Feed and Hand Cross Feed, with Countershaft



The Lancaster 10-inch Bench Lathe is constructed for pattern and model

The Lancaster 10-inch Bench Lathe is constructed for pattern and model's shops, experimental work, garages, electrical repair shops or any shop where a high-grade lathe is wanted.

It is manufactured especially to give the mechanic a high-grade tool at a low price, as it has all the desirable features of a high-priced engine lathe without the screw cutting attachment.

The feed rod is made of special high-grade carbon steel; all sliding surfaces are accurately scraped to a bearing. The spindle and all round parts are ground for accuracy. The feed gears are easily changed and all gears are guarded. The lathe is equipped with small face plate and countershaft and wrenches.

The Bed is rigid, cross ribbed by heavy braces, cast in at frequent intervals its entire length; has three V's and one flat bar for the guide of the head and tail stocks.

vals the entire length, has three v s and the has but for the glade of the lacks and tail stocks.

The Head Stock is massive, having a bearing on the bed 10½ inches. The Spindle is 60-point carbon Crucible Steel, accurately ground. Bearings are high-grade phosphor bronze, carefully scraped to fit the spindle. The Tail Stock is offset and Tail Spindle is made of Crucible Steel.

The carriage and apron are strong and with deep bridges each cast in one prices.

piece.

DETAILED DIMENSIONS

Swing over Shear $10\frac{1}{2}$ inches. Swing over Carriage . . $6\frac{1}{2}$ inches. Distance between Centers, 4-ft. Bed 26 inches.

Front Spindle Bearing

1½ inches dia. x 2½ inches long.
Rear Spindle Bearing

1½ inches dia. x 1½ inches long.
Hole through Spindle ... ¼ inches long.
Hole through Spindle ... ¼ inches long.
Hole through Spindle ... ¼ inches long.
Tail Spindle

1½ inches in dia., 12 U. S. S. Threads.
Tail Spindle

1½ inches in dia., 3-inch Traverse.
Taper of Centers ... No. 2 Morse.
Cone Pulley Diameters on Lathe

Fitted with Three-Step Cone Pulleys, Back Gears, Positive Geared Feed, Automatic Longitudinal and Power Cross Feed, and Compound Rest

Cross Feed, and Compound Kest

The Lancaster 10-inch Engine Lathe is constructed for Garage, General Repair Shops and Machine Shops for manufacturing. The Lead Screw is made of special high-grade carbon steel; all sliding surfaces are accurately scraped to a bearing. The spindle and all round parts are ground for accuracy. This Lathe is indexed to cut standard threads from 4 to 40 either right or left, including 11½-inch pipe thread. The Lathe is equipped with compound rest follower and steady rests, change gears, large and small face plates, double friction Countershaft and Wrenches. The Bed is rigid, cross ribbed by heavy braces, cast at frequent intervals; has three V's and one flat bar for the slot guide of the head and tail stocks. The Rack is steel and cut from the solid bar. The Head Stock is massive, having a bearing on the bed 10½ inches. The Spindle is 60-point carbon Crucible Steel, accurately ground. Bearings are high-grade phosphor bronze, carefully scraped to fit the spindle. The Tail Stock is offset to allow the Compound Rest to swing parallel to the bed and Tail Spindle is made of Crucible Steel. The Carriage and Apron are strong and with deep bridges each cast in one piece.

The Tail Educk

DETAILED DIMENSIONS

26 inches. Front Spindle Bearing

1½ inches dia. x 2½ inches long.

Rear Spindle Bearing

1½ inches dia. x 1½ inches long.

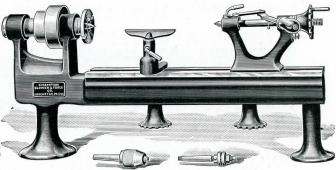
Hole through Spindle ½ inch.

Ratio of Back Gearing 7.23 to 1. Spindle Speeds 12. Compound Rest Travel 3 inches. Length of Carriage Bearing on Shears 12 inches. Cone Pulley Diameters on C/S $3\frac{1}{17}$ inches, $4\frac{4}{16}$ inches and $5\frac{1}{17}$ inches. Countershaft Driving Pulley $6 \times 1\frac{1}{2}$ inches. Countershaft Speed 175 R.P.M. Size of Tools $\frac{4}{3} \times \frac{3}{4}$.

Spindle Nose Spindle Nose $3\frac{1}{16}$ inches, $4\frac{5}{16}$ inches and $5\frac{7}{16}$ inches. Tail Spindle $1\frac{1}{5}$ inches in dia., 3-inch Traverse. Taper of Centers No. 2 Morse. 10-Inch Engine Lathe with four-foot Bed, Weight 625 lbs. Code—Latant.

10-Inch Engine Lathe with five-foot Bed, Weight 700 lbs. Code-Latonk.

LANCASTER BALL-BEARING BENCH LATHE



The best low-priced light three-speed Ball-Bearing Bench Lathe for general utility and garage use, adapted for such work as turning commutators, magneto and speedometer work, polishing and other corell work of

commutators, magneto and speedometer work, polishing and other small work, etc.

Equipped with Chuck taking straight shank drills up to $\frac{1}{2}$ "; also complete with buffing attachment to hold felt, wire or emery wheels.

Length of bed 24". Distance between centers 12".

Swing 7".

Weight 45 pounds.

Lathe complete with Chuck, Arbor and Face Plate. Code—Bart. Same as above with bed 36" long, Distance between centers 24",

Weight 55 lbs. Code-Bask.

Countershaft for above—weight 15 lbs. Code-Bant.

Slide Rest for above—weight $6\frac{1}{2}$ lbs. Code-Bab.

† H.P. motor will run this lathe as it is equipped with adjustable ball bearings.







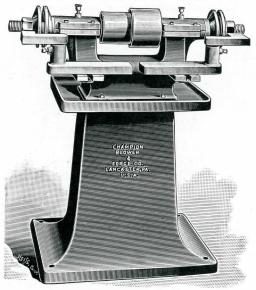


NO. 1 CHAMPION COLUMN GRINDER

With Ring Oil Bearings Made with Single Pulley or Tight and Loose Pulleys



NO. 20 CHAMPION GRINDER With Ring Oil Bearings



No. 20 Champion Grinder is a very stout, heavy and rigid machine. The bearings are of particularly great length. It has a capacity for wheels 18 inches in diameter with 3-inch face, 1½-inch hole. The journals are dust proof. The rests are rigid and easily adjusted. The bearings are babbitted with genuine babbitt, and furnished with ring oilers

babbitted with genume babbits, and oilers.

This machine is suitably adapted for anyone desiring a stout, heavy and well-built machine for use in foundry and machine shop.

No. 20 Champion Grinder. Capacity 18 x 3-inch Wheel, with 1½-inch Hole. Arbor to Floor 36 Inches. Size of Base 19¾ x 26 Inches. Length of Arbor 36 Inches. Diameter of Arbor 1¾ Inches. Size of Pulley 5 and 6 x 4¼ Inches. Weight 550 lbs. Complete.

Code—Feetem.

Code—Feetem.**

This for above Machine. Drive

No. 20 Champion Countershaft for above Machine. Drive Pulley 12½ Inches and 13½ Inches in Diameter x 4½-inch Face. Tight and Loose Pulley 10 Inches in Diameter x 3½-inch Face. Length of Shaft 30 Inches. Diameter of Shaft 1½ Inches. Weight 130 lbs. Code—Fetes. Guards for above Grinder for 18-inch Wheels. Weight 70 lbs.

No. 1 Champion Upright Column Grinder has been built from heavy and substantial patterns, thus making it a stiff and substantial grinder to meet all conditions of grinding and polishing in the machine shop, foundry, blacksmith shop, garage, etc., and carries wheels up to 16 x 3 inches or smaller with 1½-inch hole.

The Champion Grinder has special long spindles and bearings. The bearings have unusually large space for the operator and for grinding large and irregular shaped castings. It is designed to grind both large and small work, as well as bicycle and automobile work, also polishing.

The bearings of the Champion Grinder are adjustable and babbitted with genuine babbitt and are provided with ring oilers, giving perfect lubrication. Each adjustable bearing has four bolts, holding them in a true line.

The Champion Grinder is supplied with rests to stand heavy work and can be easily arranged for the side or face of the wheel.

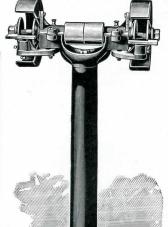
No. 1 Champion Upright Column Grinder, Capacity 16 Inches x 3 Inches, Wheel with 1½-inch Hole, Arbor to Floor 34 Inches, Diameter of Base 18 Inches, Length of Arbor 40 Inches, Diameter of Arbor 1½ Inches, Size of Pulleys 4½ Inches x 4½ Inches. Weight Complete 255 lbs. Code—Fiest.

Extra for Tight and Loose Pulleys.

No. 1 Countershaft for above, as shown on page 83, Drive Pulley, 14 Inches in Diameter, 4-inch Face, Tight and Loose Pulleys, 6 Inches in Diameter, 4-inch Face, Length of Shaft 30 Inches, Diameter 1½ Inches. Weight 100 lbs. Code—Fixinger.

No. 1 Disc Grinding Attachment for above, Capacity 36 Inches. Weight 25 lbs. Guards for above Grinder for 16-inch Wheels. Weight 55 lbs.

NO. 11 CHAMPION COLUMN GRINDER



With Ring Oil Bearings

No. 11 Champion Upright Column Grinder is a very substantial design for garage and general repair work, where a well-built machine is wanted in a lighter pattern. Bearings are long, well babbitted with genuine babbitt, fitted with ring oilers and oil reservoir, giving perfect lubrication. It is equipped with adjustable rests, which can readily be removed, and guards. The extra long distance between the wheels permits the operator to grind or buff large pieces without coming in contact with the stand.

No. 11 Champion Upright Column Grinder. Capacity 12 x 2½ Inches. Wheel with 1-inch Hole. Arbor to Floor 36½ inches. Diameter of Base 14 Inches. Length of Arbor 25 Inches. Size of Pulleys 3¾ x 3 Inches. Weight 165 lbs. Code—Funk.

NO. 10 CHAMPION COMBINATION GRINDER AND BUFFER

No. 10 Combination Grinder and Buffer is best adapted to garage, tire service station, vulcanizing shop or general grinding and buffing work.

or general grinding and buffing work.

The bearings are babbitted with genuine babbitt, being split so wear can be taken up when necessary, and ring oilers keep this machine well lubricated.

The extended bearings firmly support the spindle, allowing it to operate free from vibration, and you will notice the exceptionally long distance between the wheels, which is particularly serviceable for wire wheel work on largest rubber tires or buffing any odd shape work.

This machine is regularly furnished with wheel guard on grinder end and is always equipped with tight and loose pulleys.

No. 10 Champion Combination

of the control of the

With Ring Oilers





NO 2. CHAMPION BENCH GRINDER

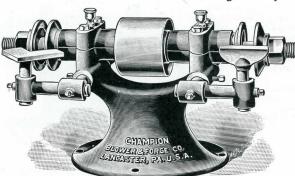
With Ring Oil Bearings

Made with Single Pulley

NO. 2A CHAMPION BENCH GRINDER

With Ring Oil Bearings

Made with Tight and Loose Pulleys





No. 2 and No. 2A Champion Bench Grinders hold two wheels 16 inches in diameter, 2-inch face or smaller, and have ring oil bearings, which give perfect lubrication, and babbitted with genuine babbitt. They are supplied with high-grade oil

cups and two rests, which can be set at any angle.

These machines are the largest and most durable Bench Grinders on the market and are very popular machines.

No. 2 Grinder furnished with single tight pulley.

No. 2A Grinder furnished with tight and loose pulleys.

These machines are fitted for either bench or column use.

No. 2 Champion Bench Grinder. Capacity 16 Inches x 2 Inches, Wheels with $1\frac{1}{4}$ -inch Hole. Arbor to Bench $9\frac{1}{2}$ Inches. Size of Base 13 Inches x 9 Inches. Length of Arbor 25 Inches. Diameter of Arbor $1\frac{1}{16}$ Inches. Size of Pulley $4\frac{1}{2}$ Inches x 4 Inches. Weight 100 lbs. Code—Femaler.

No. 2A Champion Bench Grinder with tight and loose pulleys. Capacity 16 Inches x 2 Inches, Wheels with 1\frac{1}{4}-inch Hole. Arbor to Bench 9\frac{1}{2}
Inches. Size of Base 13 Inches x 9 Inches. Length of Arbor 25 Inches. Diameter of Arbor 1\frac{5}{16} Inches. Size of Pulley 4\frac{1}{2} Inches x 4
Inches. Weight 105 lbs. Code—Femalerte.

No. 2 Champion Countershaft for above, shown on page 83. Drive Pulley 12 Inches in Diameter, 3½-inch Face. Tight and Loose Pulley 6 Inches in Diameter, 4-inch Face. Length of Arbor 26 Inches. Diameter 1½ Inches. Weight 95 lbs. Code—Femura.

No. 2 Column for above shown on page 83. Top Plate 11 Inches x 15 Inches. Base 14 Inches x 18 Inches. Height 28 Inches. Diameter 6 Inches. Weight 105 lbs. Code—Feniana.

Guards for above Grinder for 16-inch Wheels. Weight 50 lbs.

NO. 0 CHAMPION BENCH GRINDER

With Ring Oil Bearings

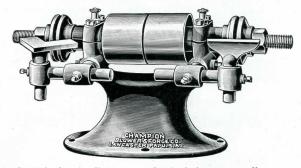
Made with Single Pulley



NO. 0A CHAMPION BENCH GRINDER

With Ring Oil Bearings

Made with Tight and Loose Pulleys



No. 0 and No. 0A Champion Bench Grinders hold two wheels 12 inches in diameter and 2-inch face or smaller.

Bearings are ring oiling, giving perfect lubrication, and babbitted with genuine babbitt; are well supplied with oil cups and two rests which can be set to any angle.

No. 0 Grinder furnished with single tight pulley.

No. 0A Grinder furnished with tight and loose pulley.

These Grinders are fitted for either column or bench use and are in every respect well-finished and highly machined Grinder Heads.

No. 0 Champion Bench Grinder. Capacity 12 Inches x 2 Inches. Wheel with 1-inch Hole, Arbor to Bench 8 Inches, Size of Base 9 Inches x 6 Inches, Length of Arbor 18 Inches, Diameter of Arbor 1½ Inches, Size of Pulleys 4 Inches x 3 Inches. Weight 50 lbs. Code—Fiesus.
 No. 0A Champion Bench Grinder with tight and loose pulleys. Capacity 12 Inches x 2 Inches. Wheel with 1-inch Hole, Arbor to Bench 8 Inches, Size of Base 9 Inches x 6 Inches, Length of Arbor 18 Inches, Diameter of Arbor 1½ Inches, Size of Pulleys 4 Inches x 3 Inches. Weight 55 lbs. Code—Fiesuste.

No. 0 Countershaft for above, shown on page 83, Drive Pulley 10 Inches in Diameter, $3\frac{1}{2}$ -inch Face, Tight and Loose Pulleys, 5 Inches in Diameter, $3\frac{1}{2}$ -inch Face, Length of Shaft 24 Inches, Diameter 1 Inch. Weight 75 lbs. Code—Feesa.

No. 0 Column for above, shown on page 83, Top Plate 11 Inches x 13 Inches, Base 12 Inches x 16 Inches, Height 28 Inches, Diameter 5 Inches. Weight 70 lbs. Code—Fecundema.

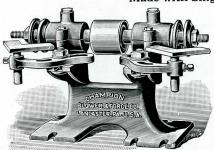
Guards for above Grinder for 12-inch Wheels. Weight 40 lbs.



NO. 3 CHAMPION BENCH GRINDER

With Ring Oil Bearings Made with Single Pulley NO. 3A CHAMPION BENCH GRINDER

With Ring Oil Bearings Made with Tight and Loose Pulleys



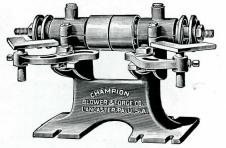
No. 3 and No. 3A Champion Bench Grinders hold two wheels 10 inches x 11 inches in diameter or smaller. The bearings are equipped with ring oilers.

The oil reservoirs when filled hold sufficient oil which lubricates the bearings automatically for three months. They are adjustable, avoiding the necessity of destroying the machine when the bearings show signs of wear.

The No. 3 and No. 3A Champion Bench Grinders are the most economical and highest grade, lowpriced Grinders on the market.

No. 3 Grinder furnished with Single Tight pulley.

No. 3A Grinder furnished with Tight and Loose pulley.



No. 3 Champion Bench Grinder. Capacity 10 Inches x 1½ Inches, Wheels with ¾-inch Hole, Arbor to Bench 6¼ Inches, Size of Base 10½ Inches x 6 Inches, Size of Pulleys 3 Inches x 2 Inches, Length of Arbor 15 Inches, Diameter of Arbor 1 Inch. Weight 30 lbs. Code—Felsinam.

No. 3A Champion Bench Grinder with Tight and Loose Pulleys. Capacity 10 Inches x 1½ Inches x 1½ Inches, Wheels with ¾-inch Hole, Arbor to Bench 6¼ Inches, Size of Base 10½ Inches x 6 Inches, Size of Pulleys 3 Inches x 2 Inches, Length of Arbor 15 Inches, Diameter of Arbor 1 Inch. Weight 35 lbs. Code—Felsinamte.

No. 3 Countercheft for above.

Weight 35 lbs. Code—Felsinante.

No. 3 Countershaft for above, shown on page 83, Drive Pulley 9 Inches Diameter with 2-inch Face, Tight and Loose Pulley 5 Inches Diameter with 2-inch Face, Length of Shaft 21 Inches, Diameter of Shaft 1 Inch. Weight 55 lbs. Code—Feltinger.

No. 3 Column for above, shown on page 83, Top Plate 9 Inches x 11 Inches, Base 10 Inches x 12 Inches, Height 28 Inches, Diameter 3½ Inches. Weight 50 lbs. Code—Frizzler.

Guards for above Grinder for 10-inch Wheels. Weight 30 lbs.

NO. 31/2 CHAMPION BENCH GRINDER Made with Single Pulley

NO. 3½A CHAMPION BENCH GRINDER

Made with Tight and Loose Pulleys

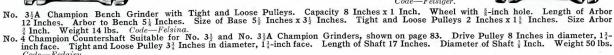
The No. $3\frac{1}{2}$ and No. $3\frac{1}{4}$ A Champion Bench Grinders hold two wheels 6 inches in diameter with 1-inch face, and are supplied with adjustable rests which can be set at any angle.

The cil reservoirs when filled hold sufficient oil which lubricates the bearings automatically for three months.

No. $3\frac{1}{2}$ Grinder furnished with single Tight pulley.

No. $3\frac{1}{2}$ A Grinder furnished with Tight and Loose pulley.

To. $3\frac{1}{2}$ Champion Bench Grinder. Capacity 8 Inches x 1 Inch. Wheel with $\frac{5}{8}$ -inch hole. Length of Arbor 10 Inches. Arbor to Bench $5\frac{1}{8}$ Inches. Size of Base $5\frac{1}{8}$ Inches x $3\frac{1}{8}$ Inches. Size of Pulley 2 Inches x $1\frac{5}{8}$ Inches. Size Arbor $\frac{3}{4}$ Inch. Weight 12 lbs. Code-Felsiger.



inch face. Tight and Loose Pulley $3\frac{3}{4}$ Inches in diameter, $1\frac{3}{4}$ -inch face. Dength of Salary.

Code—Fedairy.

4 Champion Column for No. $3\frac{1}{2}$ and No. $3\frac{1}{2}$ A Grinders, shown on page 83. Top Plate 6 x 8 inches, Base 9 x 12 inches, Height 28 Inches, Diam. 3 Inches. Weight 30 lbs. Code—Federlence.

NO. 4 CHAMPION BENCH GRINDER

Made with Single Pulley



NO. 4A CHAMPION BENCH GRINDER

Made with Tight and Loose Pulleys



NO. 6 CHAMPION BENCH POLISHING **HEAD**



No. 4 and No. 4A Champion Bench Grinders are adapted for jewelry and dental use, and shoe manufacturing, and all work where light grinding is done. These Grinders will hold two wheels 6 inches in diameter with 1-inch face. They are supplied with Ring Oil Bearings. The oil chambers surrounding these bearings when filled hold oil which lubricates the bearings automatically for months.

No. 6 Champion Polishing Head will hold two wheels, one emery and one polishing, 6 inches in diameter, 1-inch face, or smaller. This spindle has a thread 3 inches long on the one end and the regular emery wheel attachment on the other. The bearings are of the Ring Oiling type. The Oil Reservoir when filled holds sufficient oil to lubricate the bearings for three months.

For those desiring a polishing head and emery wheel combined for handling medium work, we know of no better machine.

For those desiring a polishing head and emery wheel combined for handling medium work, we know of no better machine.

No. 4 Champion Bench Grinder. Capacity 6 Inches x 1-inch Wheels with \(\frac{1}{6}\)-inch Hole. Length of Arbor 10 Inches. Arbor to Bench 5\frac{1}{6}\) Inches. Size of Base 5\frac{1}{6}\) Inches. Size of Pulley 2 Inches x 1\frac{1}{6}\) Inches. Diameter of Arbor \(\frac{1}{6}\) Inch. Weight 15 lbs. Code—Feesley.

No. 4A Champion Bench Grinder with Tight and Loose Pulley. Capacity 6 Inches x 1-inch Wheels with \(\frac{3}{6}\)-inch Hole. Length of Arbor 10 Inches. Arbor to Bench 5\frac{1}{6}\) Inches. Size of Base 5\frac{1}{2}\) Inches x 3\frac{1}{2}\) Inches. Size of Pulley 2 Inches x 1\frac{1}{6}\) Inches. Diameter of Arbor \(\frac{3}{6}\) Inches. Weight 20 lbs. Code—Feeslet.

No. 4 Countershaft for No. 4 or No. 6 Champion Grinder, shown on page 83. Drive Pulley 8 Inches in Diameter, 1\frac{3}{6}\)-inch Face. Tight and Loose Pulley 3\(\frac{3}{6}\) Inches in Diameter with 1\(\frac{3}{6}\)-inch Face. Length of Shaft 17 Inches, Diameter of Shaft \(\frac{3}{6}\) Inches. Weight 50 lbs. Code—Fedairy.

No. 4 Column for No. 4 or No. 6 Champion Grinder, shown on page 83. Top Plate 6 Inches x 8 Inches, Base 9 Inches x 12 Inches. Height 28 Inches. Diameter 3 Inches. Weight 30 lbs. Code—Federlence.

No. 6 Champion Bench Polishing Head. Capacity 6 Inches x 1-inch Wheels with \(\frac{5}{6}\)-inch Hole. Length of Arbor 10 Inches. Size of Base 5\frac{1}{2}\)

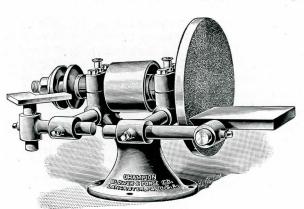
No. 6 Champion Bench Polishing Head. Size of Pulleys 2 Inches x 1\(\frac{1}{6}\) Inches. Diameter of Arbor \(\frac{3}{6}\) Inches. Size of Base 5\(\frac{1}{2}\)

Inches x 3\frac{1}{2}\) Inches. Arbor to Bench 5\(\frac{1}{6}\) Inches. Size of Pulleys 2 Inches. Diameter of Arbor \(\frac{3}{6}\) Inch. Weight 15 lbs. Code—Felworthy.



NO. 12 CHAMPION DISK GRINDER

With Ring Oil Bearings



No. 12 Champion Disk Grinder is designed for use in shops and tool rooms, where a disk wheel will save time, over milling, planing, or filing. This machine is built to be placed on a bench or mounted on a column. This disk is securely bolted to the main spindle. The spindle bearings are adjustable and equipped with ring oilers. They are made particularly

long for hard service.

The left hand side of the machine will carry emery wheels up to 10 inches in diameter, for tool grinding, and provided with adjustable rests. Each machine is equipped with two disks, making it possible to keep one

in constant use.

The bearings are ring oiling, and give perfect lubrication. The babbitted with genuine babbitt, and are well supplied with oil cups

No. 12 Champion Disk Grinder, is furnished with Two 10-inch Disks. Capacity 10 x 2-inch Wheels, with 1-inch Hole. Arbor to Bench 8 Inches. Size of Base 9 x 6 Inches. Length of Arbor 18 Inches. Diameter of Arbor 1 Inch. Size of Pulley 4 x 3 Inches. Weight 90 lbs.

Diameter of Arbor I Inch. Size of Pulley 4 x 3 Inches. Weight 90 lbs. Code—Freigheter.

No. 12 Champion Countershaft for above, shown on page 83. Drive Pulley 10 Inches in Diameter, 3½-inch Face. Tight and Loose Pulley 5 Inches in Diameter of Shaft 1 Inch. Weight 70 lbs. Code—Feesa.

No. 12 Column for above, shown on page 83. Top Plate 11 x 13 Inches. Base 12 x 16 Inches. Height 28 Inches, Diameter 5 Inches. Weight 70 lbs. Code—Feeundema.

Cementing Press for above will take Two Disks, and has Ball Thrust Bearings. Weight 40 lbs.

NO. 5 CHAMPION SAW GUMMER

With Ring Oil Bearings

No. 5 Champion Saw Gummer will carry a single wheel 12 inches in diameter and 1½-inch face or smaller. It has extra long bearings, babbitted with genuine babbitt and equipped with ring oilers, giving perfect lubrication. It is fitted with dust-proof collars and an adjustable rest.

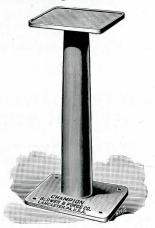
This Gummer is particularly serviceable as a Saw Gummer or wherever a single wheel grinder can be used.

No. 5 Champion Saw Gummer, Capacity 12 Inches x 1½-inch Wheel with ½-inch Hole. Arbor to Bench 7 Inches. Size of Base 9½ Inches x 7½ Inches. Length of Arbor 13½ Inches. Diameter of Arbor ½ Inch. Size of Pulley 4 Inches x 3 Inches. Weight 40 lbs. Code—Federality.

No. 5 Champion Countershaft for above, shown on page 83. Drive Pulley 10 Inches in Diameter, 3-inch Face. Tight and Loose Pulley 5 Inches in Diameter, 3½-inch Face. Length of Shaft 24 Inches, Diameter 1 Inch. Weight 70 lbs. Code—Feesarat.



CHAMPION COLUMN For Mounting Bench Grinders



Champion Columns are made in four sizes, suitable for the various Champion Bench Grinders. This column has a rib around the top plate to prevent tools from falling off. It is stoutly built, rigid and gives proper height for grinding to the various bench grinders. It will be found a great deal more economical to mount bench grinders

on columns than any temporary mounting that can be used.

No. 0 Champion Column, Suitable for No. 0 and No. 12 Bench Grinder.

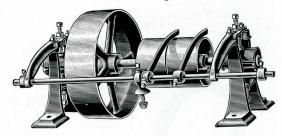
No. 0 Champion Column, Suitable for No. 0 and No. 12 Bench Grinder. Top Plate 11 x 13 Inches, Base 12 x 16 Inches, Height 28 Inches, Diam. 5 Inches. Weight 70 lbs. Code-Fecundema.

No. 2 Champion Column, Suitable for No. 2 Bench Grinder. Top Plate 11 x 15 Inches, Base 14 x 18 Inches, Height 28 Inches, Diam. 6 Inches. Weight 105 lbs. Code-Feniana.

No. 3 Champion Column, Suitable for No. 3 Bench Grinder. Top Plate 9 x 11 Inches, Base 10 x 12 Inches, Height 28 Inches, Diam. $3\frac{1}{2}$ Inches. Weight 50 lbs. Code-Frizzler.

No. 4 Champion Column, Suitable for No. $3\frac{1}{2}$, No. 4 and No. 6 Bench Grinder. Top Plate 6 x 8 Inches, Base 9 x 12 Inches, Height 28 Inches, Diam. 3 Inches. Weight 30 lbs. Code-Federlence.

CHAMPION COUNTERSHAFTS For Use with Champion Grinders



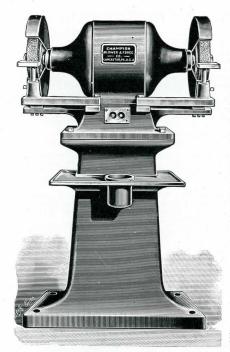
Champion Countershafts are constructed stout and rigid to stand constant service. The bearings are large, babbitted with genuine babbitt, and furnished with an oil reservoir of sufficient size to carry oil supply for three months' usage. It is furnished with a plain belt shifter.

No. 20 Champion Countershaft Suitable for No. 20 Champion Grinder. Drive Cone Pulley 12½ x 13½ Inches in Diameter, 4½-inch Face. Tight and Loose Pulley 10 Inches in Diameter, 3½-inch Face. Length of Shaft 30 Inches, Diameter 1½ Inches. Weight 130 lbs. Code—Fetes. No. 1 Champion Countershaft Suitable for No. 1 Champion Grinder. Drive Pulley 14 Inches in Diameter, 4-inch Face. Length of Shaft 30 Inches, Diameter 1½ Inches. Weight 100 lbs. Code—Fixinger. No. 2 Champion Countershaft Suitable for No. 2 Champion Grinder. Drive Pulley 12 Inches in Diameter, 3½-inch Face. Tight and Loose Pulley 6 Inches in Diameter, 3½-inch Face. Tight and Loose Pulley 6 Inches in Diameter, 3½-inch Face. Tight and Loose Pulley 6 Inches in Diameter, 3½-inch Face. Tight and Loose Pulley 6 Inches in Diameter, 3½-inch Face. Tight and Loose Pulley 5 Inches in Diameter, 3½-inch Face. Tight and Loose Pulley 5 Inches in Diameter, 3½-inch Face. Tight and Loose Pulley 5 Inches in Diameter, 3½-inch Face. Tight and Loose Pulley 5 Inches in Diameter, 3½-inch Face. Tight and Loose Pulley 9 Inches in Diameter, 3½-inch Face. Tight and Loose Pulley 9 Inches in Diameter, 3½-inch Face. Tight and Loose Pulley 9 Inches in Diameter, 3½-inch Face. Tight and Loose Pulley 9 Inches in Diameter, 2-inch Face. Length of Shaft 21 Inches, Diameter 1 Inch. Weight 75 lbs. Code—Feesa.
No. 3 Champion Countershaft Suitable for No. 3 Champion Grinder. Drive Pulley 9 Inches in Diameter, 2-inch Face. Length of Shaft 21 Inches, Diameter 1 Inch. Weight 55 lbs. Code—Feltinger.
No. 4 Champion Countershaft Suitable for No. 3½, No. 4 and No. 6 Champion Grinder. Drive Pulley 8 Inches in Diameter, 1½-inch Face. Length of Shaft 17 Inches. Diameter of Shaft ½ Inch. Weight 50 lbs.

Code—Fedairy.







THE CHAMPION HEAVY DUTY ELECTRIC-DRIVEN FLOOR GRINDER

The Champion Heavy Duty Electric-Driven Floor Grinder is the Champion Heavy Duty Electric-Driven Bench Grinder shown below, Mounted on Pedestal. The Pedestal is fitted with suitable Tool Rack and like the Champion Electric-Driven Bench Grinder is specially built for heavy duty and constant service. No Emery Wheels furnished.

No. 610 Champion Heavy Duty Electric-Driven Floor Grinder with ½ H.P. Motor, speed 3500 R.P.M. Capacity 8 x ½-inch Wheels, with ½-inch Hole. Length of arbor 28 inches. Weight 380 lbs. Code—Facton.

o. 611 Champion Heavy Duty Electric-Driven Floor Grinder with 1 H.P. Motor, speed 1750 R.P.M. Capacity 10 x 1-inch Wheels, with 1-inch Hole. Length of arbor 29 inches. Weight 420 lbs. Code—Fandango.

0. 612 Champion Heavy Duty Electric-Driven Floor Grinder with 2 H.P. Motor, speed 1750 R.P.M. Capacity 12 x 1½-inch Wheels, with 1-inch Hole. Length of arbor 29½ inches. Weight 635 lbs. Code—Faillins.

o. 613 Champion Heavy Duty Electric-Driven Floor Grinder with 3 H.P. Motor, speed 1750 R.P.M. Capacity 14 x 2-inch Wheels, with 1\frac{1}{4}-inch Hole. Length of arbor 37 inches. Weight 700 lbs. Code—Fail.

THE CHAMPION HEAVY DUTY ELECTRIC-DRIVEN BENCH GRINDER

The Champion Heavy Duty Electric-Driven Bench Grinder is recommended for the heaviest kind of grinding within the range of its capacity, as well as buffing and polishing. The Motor supplied is of ample horsepower to take care of Emery Wheels to the capacity indicated, is fully enclosed and is equipped with

two adjustable tool rests and wheel guards and is supplied with suitable Switch for operating the Motor. Emery Wheels, however, are not supplied with the machine. No Emery Wheels furnished.

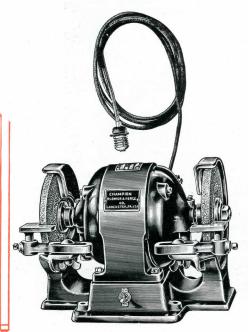
No. 600 Champion Heavy Duty Electric-Driven Bench Grinder with $\frac{1}{2}$ H.P. Motor, speed 3500 R.P.M. Capacity 8 x $\frac{3}{4}$ -inch Wheels, with $\frac{7}{8}$ -inch Hole. Length of arbor 28 inches. Weight 225 lbs. Code—Faczila.

No. 601 Champion Heavy Duty Electric-Driven Bench Grinder with 1 H.P. Motor, speed 1750 R.P.M. Capacity 10 x 1-inch Wheels, with 1-inch Hole. Length of arbor 29 inches. Weight 265 lbs. Code—Factitamus.

No. 602 Champion Heavy Duty Electric-Driven Bench Grinder with 2 H.P. Motor, speed 1750 R.P.M. Capacity 12 x $1\frac{1}{2}$ -inch Wheels, with 1-inch Hole. Length of arbor 29 $\frac{1}{2}$ inches. Weight 400 lbs. Code—Facianata.

No. 603 Champion Heavy Duty Electric-Driven Bench Grinder with 3 H.P. Motor, speed 1750 R.P.M. Capacity 14 x 2-inch Wheels, with 1½-inch Hole. Length of arbor 37 inches. Weight 425 lbs. Code—Fabaltjes.





NO. 599 CHAMPION ELECTRIC-DRIVEN BENCH GRINDER WITH 6 x 1/2 INCH WHEELS

A high-grade 6" Electric Grinder with \(\frac{1}{4}\) H.P., 3500 R.P.M. Dust-Proof Motor complete with two (2) 6 x ½" Wheels—one coarse and one fine—with wheel guards, cord, plug, and switch, and adjustable V rests. Large base which permits Grinder to stand firm without vibration.

Bearings are phosphor bronze—oiled with felt wick oilers supplied from large oil reservoirs which hold sufficient oil to run three months without attention. Wheel guards can be removed for Buffing, if desired.

Shaft is 12'' long by $\frac{1}{2}''$ between flanges.

Motor is tapered on each end so work can be swung around without striking the motor, and surface speed of wheel is one mile per minute—exactly what an emery wheel should run to grind without clogging, making it the fastest cutting Electric Bench Grinder on the market—far superior to lower speed Grinders.

Weight 50 lbs. Code-Femoral.

Pedestal for above grinder. Height 28 inches. Weight 50 lbs. Code-Femorales.





CHAMPION UNIVERSAL MOTOR-DRIVEN BRAKE BAND AND MULTIPLE CLUTCH DISC RELINING **MACHINE**

NO. 5

Removes old Rivets and Attaches and Relines Brake and Transmission Bands, Truck Shoes, Clutch Discs and Cones, with either Split or Tubular Rivets.

Champion Motor-Driven Brake and Clutch Relining Machine eliminates all hand work in replacing brake lining and clutch facing.

Meets with the approval of the most experienced engineers and brake lining experts.

To remove old rivets a cutting-off block and chisel are furnished, which without damaging the band itself cuts out the old rivet and permits the lining to be speedily removed.

To insert rivets with the head on the brake band, there is furnished a punch that will continue the brake band hole through the lining, and if the head is desired on the brake lining side there is furnished a combination countersink and drill, which by having the hole in the brake band registering in the finder on the anvil of the machine, then drilling through the lining and countersinking half the thickness of the lining.

A special rosette is furnished which splits and spreads tubular rivets six ways, and also a straight rosette is furnished on the turret to handle split rivets.

All tools are firmly attached to the turret head, which can be revolved to place them con-

secutively in their proper position. A ½ H.P. motor operates the drill and countersink; the treadle operates all the other tools, and is the only machine built that will do all the work without the addition of a secondary machine to complete the entire operation.

With these attachments automatically operated a brake band can be relined in one-fifth the time it can be done by hand, and will handle all types of bands and clutch discs, etc.

Champion Motor-Driven Brake and Clutch Relining Machine, with cutting-off block, chisel, punches and dies rosettes for both split and tubular rivets; anvil tool for removing old Rivets, one each 3/16" and 5/32" Finder, one each 5/16", §" and 7/16" Rivet setter; three combination countersinks and drills as follows:

Drill 5/32" Drill 5/32" Drill 3/16" Height over all 54"

Countersink 25/64" Countersink 15/32" Countersink 17/32" Weight 190 lbs.

Code-Fedavi



CHAMPION UNIVERSAL BRAKE BAND AND MULTIPLE CLUTCH DISC RELINING MACHINE NO. 2

Removes Old Rivets and Attaches Brake Lining or Multiple Clutch Disc Facing with Either Split or Tubular Rivets

This machine eliminates all hand work in replacing brake linings and disc clutch facings, making it an automatic time and labor saver, thereby adding to your profits.

For removing old rivets with this machine is furnished a cutting-off block and chisel, which without damaging the band itself cuts out the old rivets and permits the lining to be removed speedily.

To insert tubular rivets there is furnished with each machine a punch that will continue the brake band hole through the lining and a special die and plunger which splits and spreads the tubular rivet six (6) ways.

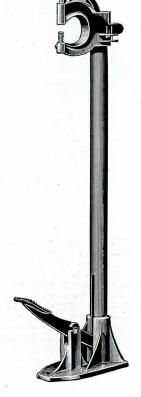
The plunger is of such size that it will enter the counter bored portion of the clutch facing

To insert split rivets the same device will as readily insert split rivets, carrying the ends of the split rivet well below the surface of the lining.

With these attachments automatically operated a brake band can be relined in one-quarter the time it takes to do so by hand.

This machine will handle practically all known types of bands and clutch discs, and is so simple that it is one of the greatest time savers ever placed on the market.

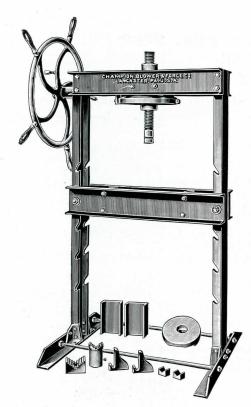
CHAMPION UNIVERSAL BRAKE BAND AND MULTIPLE CLUTCH DISC RELINING MACHINE, with cutting-off block, chisel, punch and die, for both split and tubular rivets, height over-all 52", weight 54 lbs. Code—Fedo.











CHAMPION 30-TON PRESS

The most powerful hand press manufactured—for garage and shop use; leverage 1500 to 1. One hundred pounds exerted on hand wheel develops seventy-five tons pressure on screw, making it possible to press, straighten or pull all classes of work for garage and machine shop.

Full equipment comes with each machine as illustrated.

The hand wheel is geared 3 to 1—with heavy enclosed bevel gears operating a 2-inch diameter 4-pitch Acme screw.

The Champion 30-ton press, being geared 3 to 1, gives the operator three times the power with the same effort or will do the same work with one-third the effort.

The hand wheel, weighing 57 pounds, is used as a fly wheel to run the spindle up or down quickly, acting as a quick return—a feature no other press has—saving time and labor.

The table can be raised or lowered by one man—without pulling bolts or pins out—by merely lowering or raising one side at a time in notch desired. This table is heavier and stronger than ordinary presses and the bolted frame acts as a safety device in case press is overtaxed.

SPECIFICATIONS

Built of 5-inch Heavy Channel Steel Uprights. Table 6 inches Heavy Section Channel. Height to top frame 65 inches. Width between uprights 32 inches. Up-and-down travel of spindle 9 inches. Occupies floor space 36 x 39 inches. Weight 570 lbs. Code—Presser.

CHAMPION 42-INCH, 32-TON PRESS

The Champion Combination Press consists of a powerful screw press of 32-ton capacity, handling all auto work.

A High Speed Arbor Press and a Straightening Attachment which will handle efficiently all character of auto service work.

Full equipment comes with each machine. The Hand Wheel is geared 3 to 1, with heavy enclosed bevel gears operating a 2-inch diameter, 4-pitch Acme screw, giving the operator three times the power with the same effort, and this wheel is used as a fly wheel to run the spindle up and down quickly, acting as a quick return—a feature no other press has.

The table can be raised or lowered by one man, without moving bolts or pins.

The High Speed Arbor Press is used on pressures up to 10 tons.

SPECIFICATIONS

Height to top of frame $69\frac{1}{2}$ ". Floor Space 36" x 47".

Upper Press 19" wide x 20" under screw. Opening in table 5".

Lower Press 42" wide x 47" under screw. Up-and-down travel of spindle 9".

Hand wheel 27" in diameter.

Frame 5" heavy section channel.

Lower table 6" heavy section channel.

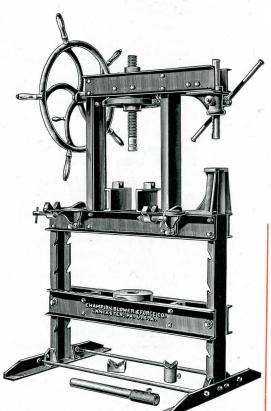
Maximum clearance between table and screw 47".

Maximum clearance between tables 22".

No. 32 Plain 42-Inch, 32-Ton Press. Weight 715 lbs.

No. 32-A 42-Inch, 32-Ton Press with High Speed Arbor Press. Weight 800 lbs.

No. 32-B 42-Inch, 32-Ton Press with High Speed Arbor Press and Straightening Attachment as illustrated. Weight 815 lbs.











CHAMPION ARBOR PRESS NO. 4

No. 4 Champion Arbor Press is especially adapted where a large and heavy floor Arbor Press is needed in factories, machine shops and garages. Frame is built of heavy cast iron. Ram and Pinion are steel—heat-treated. Hand lever is adjustable for large and small work, and is furnished with a counter-balance. The table is adjusted by means of a screw—permitting it to remain where placed at all times.

The babbitted cushion on the base protects the mandrel when falling. The ring prevents the mandrel or shaft from falling lengthwise.

SPECIFICATIONS

	Floor Space25 inches x 33 inches.
Largest Mandrel 3 inches.	Height62 inches.
Size of Table	Leverage
Greatest Distance from Table to Ram . 29 inches.	Weight
Size of Ram	Code-Prince.

CHAMPION ARBOR PRESS NO. 3

The No. 3 Champion Arbor Press is the popular size, and best adapted for use in factories, machine shops and garages, and is designed to mount on the bench or on a lathe

The frame is built of cast iron; the ram and pinion of steel, hardened and heat-treated; the hand lever is adjustable for large and small work.

SPECIFICATIONS

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CHAMPION MOTOR STAND

The Champion Motor Stand for Ford and Chevrolet motors is the most substantial, handy, universal motor stand on the market today.

It stands solid and firm on its own base and the motor removed from the chassis can be securely fastened by means of a yoke and spindle in the shortest time possible; the yoke and spindle fastened by a nut and washer.

The motor can then be placed in any one of forty positions, so that the mechanic can work on the motor top, bottom, sides and the ends, a feature not found on the other motor stands on the market today. This motor stand can be furnished either stationary or movable with caster.

SPECIFICATIONS

Floor Space	16 inches x 26 1/4 inches.	Weight	165 lbs.
Height	35 inches.	Code— $Gamad$.	



HERCULES "PATENTED" POWER HAMMER

With Flexibility in Stroke of a Hammer in a Mechanic's Hand Made in Two Sizes



Hercules "Patented" Power Hammer is made in two sizes: No. 0 with Ram weighing 30 pounds, and No. 1 with Ram weighing 65 pounds. They contain all the good features of the best Hammer ever built, and are superior to any of the high-priced ones, and sell at a moderate figure.

The frame and anvil are cast in one solid piece, therefore insures perfect alignment of the dies and a solid anvil, giving rigidity and solidity for the reception of severe and rapid blows.

The position of the dies is such that there is no limit to the length of the bar which can be worked.

They are double-sided Hammers, and can be used as well from one side as the other. They can be placed between two fires, and operated equally as well from either fire by a double treadle.

The control of these Hammers is so perfect that the blow can be made absolutely at the will of the operator, from a gentle stroke to a rapid succession of mighty blows, and material to its full capacity can be forged down to the size of a horseshoe nail without any change of adjustment.

The friction for stopping the Hammers is such that the operator can strike one blow and stop with the Hammer on the up-stroke.

The Hammer Head and Ram stand out from the main part of the frame, are not covered up to obscure the work of the operator, which is a great advantage; also in forging iron with an angle in it, you can get in very close to the corner.

The height of the frame is such that a tire three feet in diameter can be welded, and it will weld a tire 4 inches wide and 1 inch thick very easily.

No. 0 Hercules "Patented" Power Hammer, with one regular set of dies for plow work, upper die 3 x 1½ ins., lower die 3 x 2 ins. Size of base of Hammer 18 x 25 ins. Height over all 5 ft. 4 ins. Weight of ram 30 lbs. Pulley 9 x 2½ ins. Speed 400 R.P.M. Capacity 2 ins., square or round. 1 H.P. required to operate same. Weight 1150 lbs. Code—Formage.

No. 1 Hercules "Patented" Power Hammer, with one set of dies $2\frac{1}{2} \times 6\frac{1}{2}$ ins., with plain surface $2\frac{1}{2} \times 3$ ins., and two plain grooves and one tapering groove across one end for forging round iron, straight and tapering. Size of base of Hammer 20 x 27 ins. Height over all 5 ft. 8 ins. Weight of ram 65 lbs. Pulley $10 \times 2\frac{1}{2}$ ins. Speed 300 R.P.M. Capacity $2\frac{1}{2}$ ins., round or square. 2 H.P. required to operate same. Weight 1400 lbs. Code—Figon.

Any ordinary shaped dies can be furnished instead of regular dies if specially ordered.

Extra dies for special work will be charged extra.

HERCULES "PATENTED" ELECTRICALLY DRIVEN POWER HAMMER

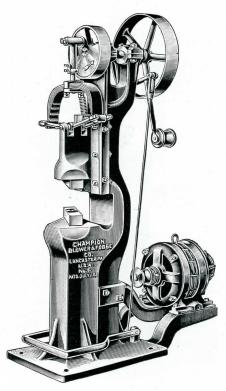
Hercules Patented Electrically Driven Power Hammer is identical in every detail with the Hercules Patented Power Hammer shown above; the only difference being that this Hammer is operated by an electric motor. The Motor is placed in such a position on the Hammer as to give a long belt between the motor and the driving pulleys of the Hammer, giving an advantage in power not usually found on an electrically driven Hammer.

This Hammer is furnished with a switch for starting and stopping the motor.

Before ordering a Hercules "Patented" Electrically Driven Power Hammer, ask your electric current manufacturer whether the current is direct or alternating and the voltage. If alternating, the cycles or alternations and phase.

No. 0E Hercules "Patented" Electrically Driven Power Hammer, any Current and Voltage. Has One Regular Set of Dies for Plow Work, Upper Die $3 \times 1\frac{1}{2}$ Ins., Lower Die 3×2 Ins. Size of Base of Hammer 18 x 25 Ins. Height over all 5 Ft. 4 Ins. Weight of Ram 30 lbs. Pulley $9 \times 2\frac{1}{2}$ Ins. Speed 400 R.P.M. Capacity 2 Ins., Square or Round. Weight 1385 lbs. Code-Firstree.

No. 1E Hercules "Patented" Electrically Driven Power Hammer, any Current and Voltage. Has One Set of Dies $2\frac{1}{2}$ Ins. x 6 $\frac{1}{2}$ Ins. with Plain Surface $2\frac{1}{2}$ Ins. x 3 Ins., and Two Plain Grooves and One Tapering Groove across One End for Forging Round Iron, Straight and Tapering. Size of Base of Hammer 20 Ins. x 27 Ins. Height over all 5 Ft. 8 Ins. Weight of Ram 65 lbs. Pulley $10 \times 2\frac{1}{2}$ Ins. Speed 300 R.P.M. Capacity $2\frac{1}{2}$ Ins., Round or Square. Weight 1660 lbs. Code—Filtype.



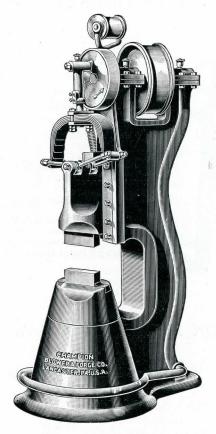






HERCULES "PATENTED" POWER HAMMER NO. 2

With the Flexibility in Stroke of a Hammer in a Mechanic's Hand



We have added to our Power Hammers a larger size than heretofore, as we have found a number of satisfied users of our smaller hammers wanting a larger and heavier hammer, and to meet this want have built No. 2 Hercules Power Hammer with 125 lb. ram, and weighing 3500 lbs.

The Frame and Anvil Base are cast in one solid piece, which insures perfect alignment of the dies. The Anvil Base has a steel anvil block on top which permits of the heaviest blows, without injury to the anvil base. This steel anvil block can be replaced without necessitating the purchase of a complete main frame, as is the case where the entire anvil block is cast in one piece in connection with the main frame.

The Dies are on 45 degree angle from left to right, thereby permitting any length of bar to be worked.

The control is so perfect the blow can be made absolutely at the will of the operator, from a gentle stroke to a rapid succession of heavy blows, forging any material from a horseshoe nail to the full capacity of the hammer, without any change of adjustment.

The friction for controlling the ram is instantaneous and will not jam or stick, enabling the operator to strike one blow and stop, or repeat with as many blows as necessary, with machine gun rapidity.

The Hammer Head and Ram stand out from the main part of the frame and not covered up to obscure the work of the operator.

SPECIFICATIONS

Will forge stock up to $2\frac{1}{2}$ inches square and $3\frac{1}{2}$ inches round.

Upper die size of face 3×6 inches. Lower die size of face 3×6 inches. Size base of hammer $27 \times 46\frac{1}{2}$ inches. Height over all 7 feet 3 inches. Throat depth 14 inches. Throat height 10 inches. Ram adjustment 3 inches. Length of stroke $7\frac{1}{2}$ inches. Length of upper bearings 9 inches. Diameter of shaft $3\frac{3}{4}$ inches.

Pulley diameter 14 inches, face $6\frac{1}{2}$ inches. Revolutions per minute 300. Weight of Ram 125 lbs.

Horsepower required 4.
Weight complete 3500 lbs.

Code—Flexible.



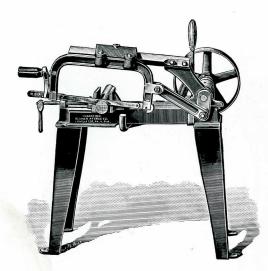






CHAMPION POWER HACK SAW MACHINE NO. 1

Capacity 4 Inches x 4 Inches



The Champion No. 1 Power Hack Saw Machine is a well-made, rugged, low-priced Hack Saw, for light work in machine shops and garages, also for construction work. Will cut fast and straight.

Equipped with positive clutch, simply constructed, preventing complicated parts getting out of order.

Is equipped with automatic shut-off which instantly stops the machine when the sawing of the material is completed.

Made with adjustable bearings so wear can be taken up when necessary.

DETAILED DIMENSIONS

Length of Blades 8 inches to 10 inches. Stroke of Blade 6 inches. Cutting Capacity 4 inches $x \neq 1$ inches. Drive Pulley 9 inches diam. $x \neq 1$ inches face.

Floor Space required 24 inches x 10 inches. Vise Jaws 2\frac{1}{8} inches high x 3\frac{1}{8} inches wide x 4\frac{1}{4} inches opening.

Speed of Pulley 40 to 60 R.P.M.

Weight 110 lbs. Code—Benton.

CHAMPION POWER HACK SAW MACHINE NO. 2

Capacity 6 Inches x 6 Inches

The Champion No. 2 Power Hack Saw Machine combines many improved features, enabling it to saw fast and straight with maximum life to the saw blade.

It has the following important features:

A swivel vise cutting to an angle of 45 degrees.

Adjustable gravity feed by means of a weight—reducing the breaking or buckling of saw blades to a minimum.

An automatic shut-off which instantly stops the machine when the sawing of material is completed.

A positive clutch—simply constructed—preventing complicated parts to get out of order.

Driven by accurately cut gears, requiring a narrow belt and positive drive with less power.

An attachment to automatically lift the saw blade on return stroke and gradually replace the blade in contact with the work on cutting stroke, thereby increasing the cutting life of the blade, and reducing to a minimum the breakage.

DETAILED DIMENSIONS

Length of Blades 8 inches, 12 inches or 14 inches.

Stroke of Blade 6 inches.

Cutting Capacity 6 inches x 6 inches.

Driving Pulley 9 inches diam. x 2½

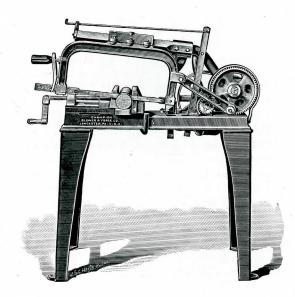
Floor Space 36 inches x 18 inches.

Vise Jaws 3% inches high x 5% inches wide x 6 inches opening.

Geared 3 to 1.

Speed of Pulley 120 to 180 R.P.M. Weight 245 pounds.

Code—Benter.





CHAMPION WROUGHT IRON AND STEEL SHEAR



The Champion Shear is made of Wrought Iron and the highest grade Steel throughout, there being not a single piece of cast iron or malleable castings used in its entire construction. This is conclusive proof that it will stand up without breakage under the work that we claim and fully guarantee for it.

The superiority of this Shear can be evidenced in the best possible manner by the fact that at least 75% of the Iron and Steel dealers of the United States have been for many years, and are today, using this Shear to cut their stock in their stores.

No. 1 Champion Shear, Weight 255 lbs., has 6-inch knives, $\frac{3}{2}$ inch thick, will cut 4-inch by $\frac{1}{2}$ -inch flat iron, and 1-inch round or square iron. Code—Fikar.

No. 2 Champion Shear, Weight 260 lbs., has 12-inch knives, $\frac{1}{2}$ inch thick, will cut 4-inch by $\frac{1}{2}$ -inch flat iron, and 1-inch round or square iron, also will cut plow steel from 6 to 10 inches wide. Code—Fikene.

CHAMPION STEEL PUNCHES

The Champion Steel Punches are built entirely of steel; the frame being one piece of steel plate and the working parts of the Punch steel forging, which in every respect makes a high-grade tool. On account of the breakage-proof, compact and rigid construction this all-steel punch is far superior to the cast iron and cast steel machines on the market. The working parts of the machine are designed to cause the least friction of the eccentric and journal bearings, therefore is easily handled. The punches are fastened by a key and the machine furnished with removable die holders so that they can be easily taken out.

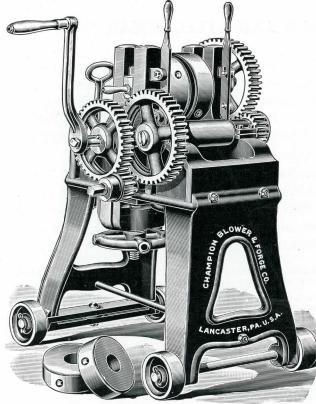
No. 1 Champion Steel Punch, Capacity \$\frac{1}{16}\$-Inch Hole in \$\frac{1}{4}\$-Inch Material, Throat 2\frac{3}{4}\$ Inches, Weight 30 lbs. \$Code\text{-Fingard}\$.

No. 2 Champion Steel Punch, Capacity ½-Inch Hole in ¾-Inch Material, Throat 6 ¼ Inches, Weight 190 lbs. Code—Finken.





CHAMPION ANGLE BENDER FOR BENDING ANGLES, TEES, AND FLATS



Bends Angles both in and out Circle

No. 1 Champion Angle Bender for bending angles, tees and flats is built to meet the requirements of structural iron workers, but only when this machine is placed in the hands of mechanics who have had angle-bending experience. While this machine will do what we claim, yet it requires mechanical ingenuity and practical experience to get results on intricate angle and tee iron bending.

Since the machine is not sold at a price sufficiently high to meet the expense of personal instruction, we can only guarantee what can be accomplished with the machine when operated by a mechanic that knows the complication resulting from angle or tee iron bending. The rolls are compounded 14 to 1, making it a powerful machine. The Bender stands on truck wheels and can be moved about the plant, giving it the advantage of being placed where the work is to be done. This Bender is sold equipped to bend 1-inch, $1\frac{1}{2}$ -inch and 2-inch angles or tees to a 18-inch radius, $2\frac{1}{2}$ - and 3-inch angles or tees to a 36-inch radius, and 4-inch angles or tees to a 60-inch radius, not over $\frac{1}{2}$ inch in thickness, to either in or out circle, $8 \times 1\frac{1}{2}$ -inch flats.

We do not guarantee to bend angles and tees without curling.

No. 1 Champion Angle Bender fitted complete for Bending 1-, $1\frac{1}{2}$ -, 2-, $2\frac{1}{2}$ -, 3-, $3\frac{1}{2}$ -, and 4-Inch Angles or Tees and $8 \times 1\frac{1}{2}$ -Inch Flat, complete with Two Cranks, Weight 1460 lbs. Code—Feildort. Hand and Power combined, extra.

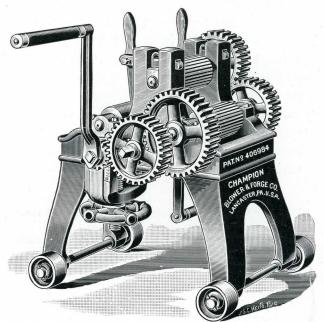
CHAMPION CENTURY TIRE BENDER

The Champion Century Tire Bender has been designed to bend all sizes of steel and iron tires up to $6 \times 1\frac{1}{4}$ inches. Bender is compounded in its gearing 14 to 1, making it the most powerful Tire Bender manufactured. The center roll lifts out for removing the tire from the Bender after being bent. The greatest time-saving advantage in lifting the center roll to take the tire out of the Bender is that the collars may stay in place on the rolls until all the tires in the set are bent. Another great advantage is the placing of gears at each end of the roll, equalizing the strain over the entire Bender. Taking the bent tire out of the machine the center roll is removed in an instant by drawing the two levers attached to the two wedge-shaped clamps about 6 inches. The Bender has two speeds for light or heavy work; both are worked from either side or both sides at the same The rolls are 4 inches in diameter, made from a solid piece of steel, corrugated and hardened. The Bearings are long and heavy, with ample adjustment for years of wear. The adjusting yoke and roll for large or small tires is simple and practical. If the tire is in the Bender, a lever may be appropriate the rise of the head of the lever may be employed in the rim of the hand wheel for raising the roll. The adjusting roll is supplied at each end with a graduated indicator with a steel point showing the size of tire being bent.

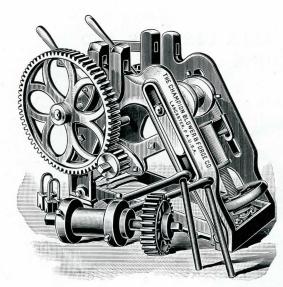
No. 1 Champion New Century Tire Bender, Weight 960 lbs., Bends Tires up to $6 \times 1\frac{1}{4}$ Inches, Complete with Collars and Two Cranks.

Hand and Power combined, extra.

Code—Feilstaub.







CHAMPION COLUMBIAN TIRE BENDERS

The Champion Columbian Tire Bender is built both strong and powerful, with gearing compounded for heavy bending as well as light. The center roll for taking the bent tire out of the machine is removed in an instant by drawing the two levers attached to the two wedge-shaped clamps about six inches. The removing of the center roll is very convenient, as the collars when set need not be removed until the full set of tires are bent. The adjusting of the Columbian Bender for large or small tires is a thorough mechanical principle, working on an incline, with a movable device which at all times works to its own center.

Extra Heavy Columbian Bender, Capacity 6 x 1 Inches, Weight 400 lbs.

No. 1 Columbian Bender, Capacity 5 x 1 Inches, Weight 325 lbs. Code-Felly.

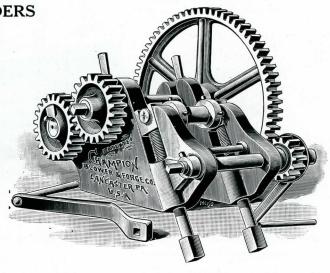
No. 2 Columbian Bender, Capacity 4 x 1 Inches, Weight 220 lbs. Code—Fell.

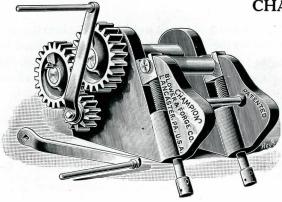
CHAMPION EUREKA TIRE BENDERS

The Champion New Patent Eureka Tire Bender is a strong and powerful tool, built with all the latest improvements; adjusting screws at each end of the adjusting roll with a graduated indicator on each side of Bender, showing the exact size of the tire being bent, giving the operator full control of the work. No more trouble to bend imperfect iron into perfect tires; the principle for getting the tire out after being bent is quick and entirely practical. The two end rolls are provided with collars to prevent the tire from twisting so both ends meet when bent. It is double back geared, and worked with two cranks which are furnished with each Bender; also two speeds, one for light and fast work, and the second for heavy work.

No. 1 New Style Eureka Bender, Bends 4 x 1-Inch Tire, Weight 200 lbs. Code-Felt.

No. 2 New Style Eureka Bender, Bends 6 x 1-Inch Tire, Weight 300 lbs. Code—Feminine.





CHAMPION NEW PATENT TIRE BENDER

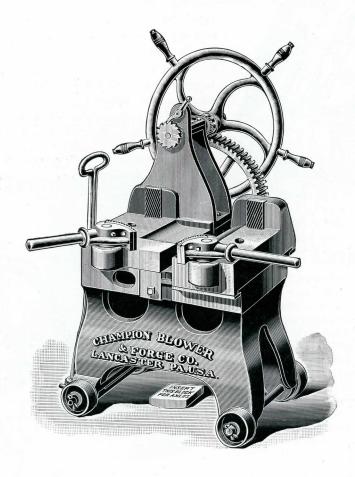
The Champion New Patent Tire Bender is constructed with all the new improvements. Will bend to any size up to $3 \times \frac{3}{4}$. Its adjusting roll has an adjusting screw at each end, with a graduated indicator on each side of the Bender showing the exact size of the tire being bent, giving all the benefits of bending perfect tires from imperfect rolled iron. The frame is cast strong and substantial with double back gears and worked with two cranks. The center roll pulls out to take the tire out, very convenient.

The Champion New Patent Tire Bender, Weight 120 lbs. Code-Fence.





CHAMPION "STAR" TIRE AND AXLE UPSETTER AND WELDING MACHINE



The Champion "Star" Tire and Axle Upsetter and Welding Machine is a tool that requires little explanation to satisfy any one doing very heavy wagon work, as well as all kinds of carriage work. It is sold on a guarantee to do the work claimed for it, having no unnecessary machinery about it to get out of order, and can be operated by any one. It is designed and built as a powerful tool. The Eccentric Shaft, as well as the Eccentric Strap, is made from the best quality of hammered steel. The Jaws are steeled with refined tool steel, making them the best possible, regardless of expense, and will stand years of hard work.

When welding tires or axles, the machine requires to be drawn together and held in that position solid, to keep the ends of the metal solid together while weld is being hammered down in shape; for this purpose a ratchet and a dog is arranged on the hand wheel, which holds it as tight as may be required. The jaws are $3\frac{1}{2}$ inches high; the teeth are machine-cut and hardened. The machine will stand all the pounding required to weld the heaviest Tires and Axles; it is mounted on wheels so that it can be moved about the shop when necessary.

No. 1 Champion "Star" Shrinker upsets or welds tire from $\frac{3}{4}$ to $5 \times 1\frac{1}{4}$ inches; upsets or welds axles, $\frac{3}{4}$ to $2\frac{1}{2}$ inches; upsets with one revolution, 2 inches; Weight 810 lbs. Code-Ferine.

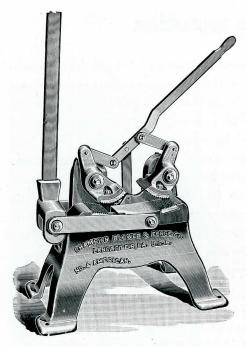
No. 2 Champion "Star" Shrinker upsets or welds tire from $\frac{3}{4}$ to 7 x $1\frac{1}{2}$ inches; upsets or welds axles, $\frac{3}{4}$ to $3\frac{1}{2}$ inches; upsets with one revolution, 2 inches; Weight 1080 lbs. Code—Feasible.

No. 3 Champion "Star" Shrinker upsets or welds tire from $\frac{3}{4}$ to $8 \times 1\frac{1}{2}$ inches; upsets or welds axles, $\frac{3}{4}$ to $3\frac{1}{2}$ inches; upsets with one revolution, 2 inches; Weight 1100 lbs. Code-Feitora.





NO. 4 CHAMPION AMERICAN TIRE AND AXLE SHRINKER



No. 4 Champion American Tire and Axle Shrinker represents a stout, bulky and powerful machine. It is guaranteed to shrink with perfect ease 4×1 -inch round edge tire down to the smallest buggy tire and axles up to $1\frac{1}{4}$ inches square. It will shrink with one stroke of the lever $1\frac{1}{4}$ inches. The Shrinker will stand all the pounding necessary to keep down the kinks in the tire.

The jaws are made of hammered tool steel with machine-cut teeth hardened to suit the work to be done. The jaws are worked by a mechanical lever and are thrown in and out instantly by a simple movement of the hand, which makes it a Shrinker that can be handled by one man if so desired.

It will be seen that the tire is gripped on its flat sides, both top and bottom, and the tire is held with a perfect grip until it is shrunk. The Shrinker is guaranteed to do the work we claim for it and is sold with our highest recommendation.

No. 4 Champion American Tire and Axle Shrinker will shrink up to 4 x 1-inch round edge tire and axles up to 1½ inches, with two steel jaws 4 x 2 inches wide. Weight 360 lbs. Code—Ferlet.

NO. 5 CHAMPION AMERICAN TIRE AND AXLE SHRINKER

HAS TWO SHRINKING LEVERS

1st Lever for Light Tires 2d Lever Double Compound

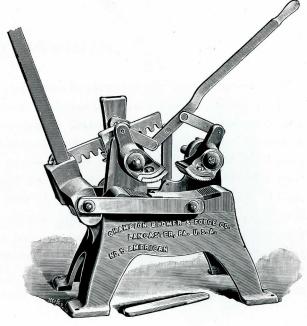
A Ratchet Firmly Locks Tires or Axle Until Kink is Hammered Flat

No. 5 Champion American Tire and Axle Shrinker is in size and capacity the same as the No. 4 American Shrinker but has two shrinking levers, one for small tires and one a Double Compound shrinking lever which greatly multiplies its shrinking power for heavy work. Both levers are always ready for instantaneous operation, either for shrinking the tire or opening the Shrinker and jaws for the next tire. This Double Compound lever represents strength, quickness of operation and speed in shrinking that places it in a class strictly its own when a higher powered Shrinker is wanted.

No. 5 Champion American Shrinker is furnished with a ratchet wheel and dog to hold and lock the tire in the Shrinker after the tire or axle is shrunken the desired distance so the shrunken kink can be hammered flat without increasing the size of the tire or axle; a valuable feature never before found except in extremely high-priced Shrinkers.

No. 5 Champion American Shrinker is cast in one solid block with double bearings on the eccentric to meet the requirements in strength for the demands of the Double Compound lever.

No. 5 Champion American Shrinker will shrink round edge tires up to 4×1 -inch and axles up to $1\frac{1}{4}$ inches, with two steel jaws 4×2 inches wide, Weight 420 lbs. Code—Fungere.

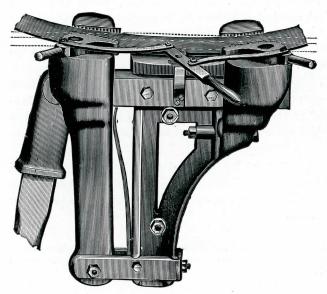








LANCASTER TIRE AND AXLE SHRINKER



The Lancaster Tire and Axle Shrinker is constructed in the most mechanical manner and from the highest grade material. The Jaws or Cams are drop forged from the highest grade of Tool Steel hardened and tempered. The Jaws or Cams are opened and closed by a single movement of the hand and it is not necessary to hold on to the handle while shrinking. The Cams are so arranged that it makes no difference what width of tire or axle is being shrunk, they always work in direct line with the center and directly opposite the grip on the other side of the Shrinker. Will shrink from smallest to a full 4×1 -inch tire or $1\frac{1}{2}$ -inch axle.

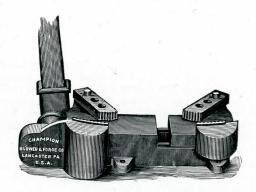
The Jaws and Cams being Tool Steel, Hardened and Tempered to suit the work, makes

them far superior to Chilled Cast Iron Jaws, such as are found on most all other medium-priced Shrinkers. The Jaws and Cams are heavy, strong and substantial, and always ready for work without any expense, as the Blacksmith can keep the Jaws and Cam teeth sharp until they are entirely worn out, as they are solid Steel. It requires but little room to set up, as it is set on a post making it as solid and firm as an anvil for hammering down the kinks in the tire while shrinking.

The Lancaster Tire and Axle Shrinker will Shrink all size Tires up to a Full 4 x 1-Inch, and Axles up to 1½ Inches, Weight 200 lbs. Code—Fermaux.

CHAMPION TIRE SHRINKER

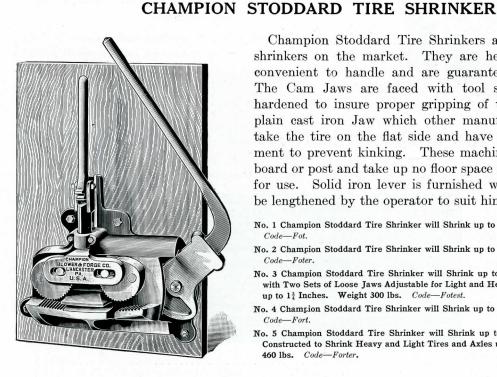
The Champion Tire Shrinker saves all cutting and welding of tires. It is the easiest worked, simplest, most durable and economical Shrinker in the market. It meets universal approval and a long-felt want among blacksmiths, the price being within the reach of all; is managed by one man with perfect ease and works equally well on the lightest steel tire and on wagon tire 4 by 1 inch. All that is necessary to operate this Shrinker is to place the tire between the jaws, then draw the two cams against the tire, and with but little pressure on the handle you can shrink the tire to suit.



The Champion Tire Shrinker, Weight 155 lbs., will Shrink Tire 4 x 1-Inch, will Shrink Axles up to 1½ Inches, Floor Space 18 x 10 Inches.

Code—Ferment.





Champion Stoddard Tire Shrinkers are the lowest priced shrinkers on the market. They are heavy in construction, convenient to handle and are guaranteed to shrink a tire. The Cam Jaws are faced with tool steel corrugated and hardened to insure proper gripping of the tire instead of a plain cast iron Jaw which other manufacturers use. They take the tire on the flat side and have an anti-kink attachment to prevent kinking. These machines are fastened to a board or post and take up no floor space and are always ready for use. Solid iron lever is furnished with each Shrinker to be lengthened by the operator to suit himself.

No. 1 Champion Stoddard Tire Shrinker will Shrink up to 2-Inch Tire. Weight 115 lbs. Code-Fot.

No. 2 Champion Stoddard Tire Shrinker will Shrink up to 4-Inch Tire. Weight 240 lbs. Code-Foter.

No. 3 Champion Stoddard Tire Shrinker will Shrink up to 4-Inch Tire. It is Equipped with Two Sets of Loose Jaws Adjustable for Light and Heavy Tires and Upsetting Axles up to 13 Inches. Weight 300 lbs. Code-Fotest.

No. 4 Champion Stoddard Tire Shrinker will Shrink up to 6-Inch Tire. Weight 425 lbs. Code-Fort.

No. 5 Champion Stoddard Tire Shrinker will Shrink up to 6-Inch Tire. It is specially Constructed to Shrink Heavy and Light Tires and Axles up to 2 Inches Thick. Weight 460 lbs. Code-Forter.

CHAMPION MOLE TIRE SHRINKER

The Champion Mole Tire Shrinker is guaranteed to work correctly and is recommended only where the lowest priced shrinker obtainable is desired. It is built of first-class material and workmanship throughout and is furnished with and without Anti-Kinking attachment.

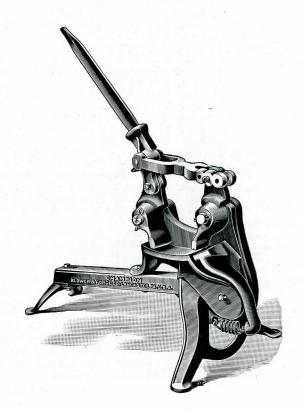
No. 1 Champion Mole Tire Shrinker will Shrink Tire 21/2 x 1/2 Ins. Weight 145 lbs. Code-Fost.

No. 2 Champion Mole Tire Shrinker will Shrink Tires 3 x 1/2 Ins. Weight 215 lbs. Code-Foster.

No. 3 Champion Mole Tire Shrinker will Shrink Tires 4 x 3 Ins. Weight 290

No. 4 Champion Mole Tire Shrinker with Anti-Kinking Device, will Shrink Tires 3 x ½ Ins. Weight 235 lbs. Code-Fostigan.

No. 5 Champion Mole Tire Shrinker with Anti-Kinking Device, will Shrink Tires 4 x 3/4 Ins. Weight 315 lbs. Code—Fostater.











THE CHAMPION EASY SCREW PLATE DIE

Easy Trade Mark, Registered September 18, 1906, No. 56,390

For simplicity in construction, compactness and neatness in design, with every improvement in a Screw Plate which makes a perfect Screw at a Single Cut, the "Easy" ranks among the highest; the Die being adjustable by the use of a Taper-Head Screw with a Taper Nut, thus being braced on both sides of the Die, making it perfectly rigid and solid.

THE CHAMPION EASY SCREW PLATES

NOTICE—Nos. 2B, $4\frac{1}{2}$ B, 5B, $5\frac{1}{2}$ B, 6B, 7B and 9B Easy Sets are Furnished with TWO STOCKS. Every Set is Packed in a Hardwood Case and Furnished with an Adjustable Tap Wrench. Taper Taps furnished are Machine-Relieved.



No. 1B. 5 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$. $Code$ —Feud
inches long. Weight $7\frac{1}{2}$ los. \$14.00 No. $1\frac{1}{2}$ B. 5 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$ 8, $\frac{3}{8}^{16}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$. $Code$ —Fuet. \$14.00 Taper Taps. Easy Dies $1\frac{1}{2}$ inches in diameter. Stock $15\frac{1}{2}$ inches long. Adjustable Tap Wrench No. 2, $10\frac{1}{2}$ inches long. Weight $7\frac{1}{2}$ lbs.
No. 2B. 5 sizes. \(\frac{1}{42}\), \(\frac{8}{816}\), \(\frac{1}{213}\), \(\frac{8}{811}\), \(\frac{4}{310}\). \(Code\)—Feverfew. \(\frac{1}{2}\) Taper Taps. Easy Dies. First two sizes \(\frac{1}{2}\) inches in diameter, larger sizes \(\frac{1}{16}\) inches in diameter. Two Stocks \(15\)\frac{1}{2}\] inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 14 lbs.
No. 3B. 4 sizes. \$\frac{5}{8}1\$, \$\frac{3}{4}0\$, \$\frac{78}{8}\$, \$\frac{18}{13}\$ inches in diameter. Stock 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 14 lbs.
inches long. Weight 14 los. \$22.50 No. 4B. 5 sizes. $\frac{1}{2}$ 13, $\frac{5}{8}$ 11, $\frac{3}{8}$ 10, $\frac{7}{8}$ 9, 18. Code—Fiat. \$22.50 Taper Taps. inches long. Easy Dies $1\frac{13}{16}$ inches in diameter. Stock 26 inches long. Adjustable Tap Wrench No. 4, 20 Weight 14 lbs.
No. $4\frac{1}{2}$ B. 6 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{8}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$. Code—Fibre
No. 5B. 7 sizes. $\frac{1}{4}^2$ 0, $\frac{5}{16}$ 18, $\frac{3}{8}$ 16, $\frac{7}{16}$ 14, $\frac{1}{2}$ 13, $\frac{5}{8}$ 11, $\frac{3}{4}$ 10. Code—Finis
No. $5\frac{1}{2}$ B. 8 sizes. $\frac{1}{4}$ 20, $\frac{5}{16}$ 18, $\frac{3}{8}$ 16, $\frac{7}{16}$ 14, $\frac{1}{2}$ 13, $\frac{9}{16}$ 16, $\frac{5}{8}$ 11, $\frac{3}{4}$ 10. Code—Fibrous
No. 6B. 7 sizes. $\frac{3}{16}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{3}{8}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{7}{8}$, 1^8 . Code—Fickle
No. 7B. 9 sizes. $\frac{1}{2}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8} . Code—Fictile
No. 9B. 10 sizes. $\frac{120}{4}$, $\frac{56}{16}$, $\frac{18}{8}$, $\frac{316}{16}$, $\frac{7}{16}$, $\frac{14}{2}$, $\frac{118}{6}$, $\frac{161}{16}$, $\frac{811}{8}$, $\frac{310}{16}$, $\frac{7}{8}$, $\frac{9}{18}$. Code—Ficarine. \$33.00 Taper Taps. Easy Dies. First four sizes $1\frac{1}{2}$ inches in diameter, larger sizes $1\frac{1}{16}$ inches in diameter. Two Stocks $15\frac{1}{2}$ inches and 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 20 lbs.
Unless otherwise ordered, all Screw Plates furnished U.S. Standard threads. Oversize V, S. A.E. or Whitworth threads can be furnished when so ordered.
ALL OUR PLATES WARRANTED



THE CHAMPION EASY SCREW PLATES

With S. A. E. Dies and Taps

NOTICE—Nos. 2A, 5A, 52A, 7A and 9A Easy Sets are Furnished with TWO STOCKS. Every Set is Packed in a Hardwood Case and Furnished with an Adjustable Tap Wrench. Plug Taps furnished are Machine-Relieved.



No. 1A. 5 sizes. $\frac{1}{4}$ 28, $\frac{5}{8}$ 24, $\frac{1}{8}$ 24, $\frac{1}{16}$ 20, $\frac{1}{2}$ 20. Code—Feudsae \$13.50. Plug Taps. Easy Dies $1\frac{1}{2}$ inches in diameter. Stock $15\frac{1}{2}$ inches long. Adjustable Tap Wrench No. 2, $10\frac{1}{2}$ inches long. Weight $7\frac{1}{2}$ lbs.

o. 2A. 5 sizes. $\frac{1}{4}$ 28, $\frac{3}{8}$ 24, $\frac{1}{2}$ 20, $\frac{3}{8}$ 18, $\frac{1}{8}$ 16. Code—Feverfeusae....\$17.75. Plug Taps. Easy Dies. First two sizes $1\frac{1}{2}$ inches in diameter, larger sizes $1\frac{1}{2}$ inches in diameter. Two Stocks $15\frac{1}{2}$ inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 14 lbs.

O. 5A. 7 sizes. $\frac{1}{4}$ ²⁵, $\frac{5}{16}$ ²⁴, $\frac{3}{16}$ ²⁴, $\frac{7}{16}$ ²⁰, $\frac{1}{2}$ ²⁰, $\frac{5}{8}$ ¹⁸, $\frac{3}{4}$ ¹⁶. Code—Fibresae. \$21.00. Plug Taps. Easy Dies. First four sizes $1\frac{1}{2}$ inches in diameter, larger sizes $1\frac{1}{16}$ inches in diameter. Two Stocks $15\frac{1}{2}$ inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 15 lbs. No. 5A. 7 sizes.

No. 5 $\frac{1}{4}$ A. 8 sizes. $\frac{1}{4}$ ²⁸, $\frac{1}{16}$ ²⁴, $\frac{3}{16}$ ²⁴, $\frac{7}{16}$ ²⁰, $\frac{1}{2}$ ²⁰, $\frac{1}{16}$ ¹⁸, $\frac{5}{8}$ ¹⁸, $\frac{3}{4}$ ¹⁶. \$2.3.00. Plug Taps. Easy Dies. First four sizes $1\frac{1}{2}$ inches in diameter, larger sizes $1\frac{1}{4}$ inches in diameter. Two Stocks $15\frac{1}{2}$ inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 16 lbs.

No. 7A. 9 sizes. $\frac{1}{4}$ ²⁸, $\frac{1}{16}$ ²⁴, $\frac{3}{8}$ ²⁴, $\frac{7}{16}$ ²⁰, $\frac{3}{2}$ ²⁰, $\frac{3}{8}$ ¹⁸, $\frac{3}{4}$ ¹⁶, $\frac{7}{8}$ ¹⁴, $\frac{1}{14}$. \$31.00. Plug Taps. Easy Dies. First four sizes $1\frac{1}{2}$ inches in diameter, larger sizes $1\frac{1}{4}$ inches in diameter. Two Stocks $15\frac{1}{2}$ inches and 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 18 lbs.

No. 9A. 10 sizes. ½28, ½24, ½24, ½27, ½20, ½28, ½18, ½18, ½16, ½14, 114. Code—Ficarinesae

Plug Taps. Easy Dies. First four sizes 1½ inches in diameter, large sizes 1½ inches and 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 20 lbs.

THE CHAMPION EASY COMBINATION SCREW PLATES

With both U. S. Standard and S. A. E. Taps and Dies

No. 11. 10 sizes. U. S. Standard, \(\frac{1}{4}^{20}\), \(\frac{5}{5}^{18}\), \(\frac{3}{2}^{16}\), \(\frac{7}{16}^{1}\), \(\frac{7}{2}^{13}\) with Taper Taps; and S. A. E. Standard, \(\frac{1}{4}^{20}\), \(\frac{5}{2}^{18}\), \(\frac{3}{2}^{24}\), \(\frac{7}{2}^{24}\), \(\frac{7}{2}^{24}\), \(\frac{7}{2}^{20}\), \(\frac{7}{2}^{20}\) with Plug Taps. \(Code\)—\(Fictal\). \(Scalebox{21.00}.\)

Easy Dies 1\(\frac{1}{2}\) inches in diameter. Stock 15\(\frac{1}{2}\) inches long. Adjustable Tap Wrench No. 2, 10\(\frac{1}{2}\) inches long. Weight 17 lbs.

No. 12. 10 sizes. U. S. Standard, \(\frac{1}{2}^{20}\), \(\frac{3}{8}^{16}\), \(\frac{1}{2}^{17}\), \(\frac{5}{2}^{11}\), \(\frac{5}{2}^{10}\) with Taper Taps; and S. A. E. Standard, \(\frac{1}{2}^{20}\), \(\frac{3}{8}^{16}\), \(\frac{1}{2}^{13}\), \(\frac{5}{2}^{11}\), \(\frac{1}{2}^{10}\) with Plug Taps. \(Code\)—\(Fidcar\). \(\frac{1}{2}\), \(\frac{1}{2}^{10}\), \(\frac{1}^{10}\), \(\f

Easy Dies. First four sizes $1\frac{1}{2}$ inches in diameter, larger sizes $1\frac{1}{2}$ inches in diameter. Two Stocks $15\frac{1}{2}$ inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 19 lbs. No. $15\frac{1}{2}$. 16 sizes. U. S. Standard, $\frac{1}{4}^{20}$, $\frac{1}{16}^{18}$, $\frac{3}{8}^{10}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{9}{16}^{12}$, $\frac{3}{8}^{11}$, $\frac{3}{4}^{10}$ with Taper Taps; and S. A. E. Standard, $\frac{1}{4}^{28}$, $\frac{5}{16}^{24}$, $\frac{3}{8}^{24}$, $\frac{7}{16}^{20}$, $\frac{1}{2}^{20}$, $\frac{1}{9}^{20}$, $\frac{1}{9}^{20}$, $\frac{1}{9}^{20}$, $\frac{1}{8}^{18}$, $\frac{3}{8}^{18}$, $\frac{3}{4}^{16}$ with Plug Taps. Code-Fifera...\$42.00.

Easy Dies. First four sizes $1\frac{1}{2}$ inches in diameter, larger sizes $1\frac{1}{4}$ inches in diameter. Two Stocks $15\frac{1}{2}$ inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 22 lbs.

No. 17. 18 sizes. U. S. Standard, $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{3}{4}^{10}$, $\frac{3}{16}^{10}$, $\frac{3}{16}^{$ Easy Dies. First four sizes $1\frac{1}{2}$ inches in diameter, larger sizes $1\frac{1}{16}$ inches in diameter, larger sizes $1\frac{1}{16}$ inches in diameter. Two Stocks $15\frac{1}{2}$ inches and 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 23 lbs. NOTICE—Nos. 12, 15, 15½, 17 and 19 Easy Sets are Furnished with TWO STOCKS. Every Set is Packed in a Hardwood Case and Furnished with an Adjustable Tap Wrench. All Taps furnished are Machine-Relieved.



No. $15\frac{1}{2}$.

19. 20 sizes. U. S. Standard, $\frac{1}{4}$ ²⁰, $\frac{1}{18}$, $\frac{3}{8}$ ¹⁶, $\frac{7}{16}$ ¹⁴, $\frac{1}{2}$ ¹⁸, $\frac{9}{6}$, 1^8 with Taper Taps; and S. A. E. Standard, $\frac{1}{4}$ ²⁸, $\frac{5}{16}$ ²⁴, $\frac{3}{2}$ ²⁴, $\frac{7}{12}$ ²⁰, $\frac{1}{2}$ ²⁰, $\frac{9}{6}$ ¹⁸, $\frac{8}{8}$ ¹⁸, $\frac{2}{8}$ ¹⁶, $\frac{7}{8}$ ¹⁴, 1¹⁴ with Plug Taps. Code-Fihigo

Easy Dies. First four sizes $1\frac{1}{2}$ inches in diameter, larger sizes $1\frac{1}{4}$ inches in diameter. Two Stocks $15\frac{1}{2}$ inches and 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 24 lbs.

THE CHAMPION SCREW PLATES



No. 71.



No. 50 FORD.

.....\$11.50. Plug Taps. Easy Dies and Guides \$\frac{1}{16}\$ inch in diameter. Stock 7 inches long. Adjustable Tap Wrench No. 1, 7 inches long. Weight 3 lbs.

No. 71. 7 sizes. \$\frac{7}{4}\tilde{6}\$, \$\frac{6}{14}\tilde{6}\$, \$\frac{6}{16}\tilde{4}\$, \$\frac{6}{32}\tilde{3}\$, \$\frac{3}{16}\tilde{4}\$, \$\frac{7}{32}\tilde{24}\$, \$\frac{7}{32}\tilde{4}\$, \$\frac{7}{4}\tilde{20}\$.

\$\frac{1}{3}\$.50.

Plug Taps. Easy Dies and Guides $\frac{13}{16}$ inch in diameter. Stock 7 inches long. Adjustable Tap Wrench No. 1, 7 inches long. Weight $3\frac{1}{2}$ lbs.

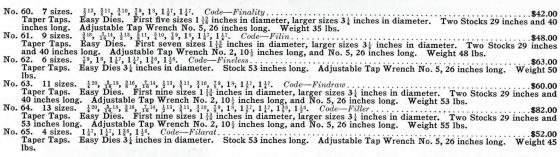


THE CHAMPION EASY SCREW PLATES

From 1/4 to 11/2 Inches

Nos. 60, 61, 63 and 64 Easy Sets are Furnished with TWO STOCKS. Every Set is Packed in a Hardwood Case and Furnished with an Adjustable Tap Wrench. All Taps are Machine-Relieved.





THE CHAMPION EASY MACHINISTS' SCREW PLATES

With Taper, Plug, and Bottoming Taps

Nos. 506, 508, 509 and 550 Easy Sets are Furnished with TWO STOCKS. Every Set is Packed in a Hardwood Case and Furnished with Adjustable Tap Wrench. All Taps are Machine-Relieved.



No. 501. 5 sizes. $\frac{1}{4}$, $\frac{4}{16}$, $\frac{1}{6}$, $\frac{1}{6}$, $\frac{3}{16}$, $\frac{7}{16}$, $\frac{1}{4}$, $\frac{1}{2}$. Code—Maker. Taper, Plug and Bottoming Taps. Easy Dies $1\frac{1}{2}$ inches in diameter. Stock $15\frac{1}{2}$ inches long. Adjustable Tap Wrench No. 2, $10\frac{1}{2}$ inches long. Weight 9 lbs.
No. 506. 7 sizes. $\frac{3}{8}$ 16, $\frac{7}{16}$ 14, $\frac{1}{2}$ 13, $\frac{1}{8}$ 11, $\frac{3}{8}$ 11, $\frac{3}{8}$ 12, $\frac{1}{8}$ 18. $Code-Makat$. Taper, Plug and Bottoming Taps. Easy Dies. First two sizes $\frac{1}{8}$ inches in diameter, larger sizes $\frac{1}{16}$ inches in diameter. Two Stocks $\frac{15}{16}$ inches and 26 inches long. Adjustable Tan Wrench No. 4, 20 inches long. Weight 23 the
No. 508. 7 sizes. $\frac{1}{4}^{20}$, $\frac{4}{6}^{16}$, $\frac{3}{6}^{16}$, $\frac{1}{4}^{15}$, $\frac{15}{6}^{15}$, $\frac{11}{4}^{15}$, $\frac{15}{6}^{10}$, $\frac{11}{4}^{10}$. Code—Makim. \$27.00 Taper, Plug and Bottoming Taps. Easy Dies. First four sizes $1\frac{1}{2}$ inches in diameter, larger sizes $1\frac{1}{16}$ inches in diameter. Two Stocks $15\frac{1}{2}$ inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 20 lbs.
No. 509. 9 sizes. $\frac{1}{4}^{20}$, $\frac{3}{6}^{16}$ 18, $\frac{3}{8}$ 16, $\frac{7}{16}$ 14, $\frac{1}{2}$ 13, $\frac{5}{8}$ 11, $\frac{3}{8}$ 10, $\frac{7}{8}$ 9, 18. $Code-Makos$
Stocks 15½ inches and 26 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 25 lbs. No. 550. 13 sizes. ½20, ¾818, ¾6, ¼6, ¼6, ¼8, ¼8, ¼8, ¼8, ¼8, ¼7, ¼8, ¼8, ¼8, ½6, Code—Makus. Taper, Plug and Bottoming Taps. Easy Dies. First nine sizes 1 ¼8 inches in diameter, larger sizes 3¼ inches in diameter. Two Stocks 26 inches and 53 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 75 lbs.
Unless otherwise ordered, we will send all Screw Plates U. S. Standard thread. Can supply Screw Plates with oversize V, S. A. E. or Whitworth form of thread, when so ordered.
ATT OUR DIAMES WILD LIVER



THE CHAMPION EASY FULL-MOUNTED SCREW PLATES

NOTICE—Every Set is Packed in a Hardwood Case and Supplied with an Adjustable Tap Wrench. All Taps are Machine-Relieved.



No. 51. 5 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$. Code—Finance	
Taper Taps. Easy Dies. Separate Stock for each die. Adjustable Tap Wrench Weight 18 lbs.	No. 2, $10\frac{1}{2}$ inches long.
No. 52. 5 sizes. $\frac{1}{4}$ 20, $\frac{3}{8}$ 16, $\frac{1}{2}$ 13, $\frac{5}{8}$ 11, $\frac{3}{4}$ 10. $Code$ —Fince	h No. 3, 15 inches long.
No. 53. 4 sizes. $\frac{5}{8}$ 11, $\frac{3}{4}$ 10, $\frac{7}{8}$ 9, 18. $Code$ —Finder	\$26.00 n No. 4, 20 inches long.
No. 54. 5 sizes. $\frac{1}{2}$ 13, $\frac{5}{8}$ 11, $\frac{3}{4}$ 10, $\frac{7}{8}$ 9, 18. $Code$ —Fine	h No. 4, 20 inches long.
No. $54\frac{1}{2}$. 6 sizes. $\frac{1}{4}$ 20, $\frac{5}{16}$ 18, $\frac{3}{8}$ 16, $\frac{7}{16}$ 14, $\frac{1}{2}$ 13, $\frac{5}{8}$ 11. Code—Finonser	
No. 55. 7 sizes. $\frac{1}{4}$ ²⁰ , $\frac{5}{16}$ ¹⁸ , $\frac{3}{8}$ ¹⁶ , $\frac{7}{16}$ ¹⁴ , $\frac{1}{2}$ ¹³ , $\frac{5}{8}$ ¹¹ , $\frac{3}{4}$ ¹⁰ . Code—Finable	\$28.00 h No. 3, 15 inches long.
No. $55\frac{1}{2}$. 8 sizes. $\frac{1}{4}$ 20, $\frac{5}{16}$ 18, $\frac{3}{8}$ 16, $\frac{7}{16}$ 14, $\frac{1}{2}$ 13, $\frac{9}{16}$ 12, $\frac{5}{8}$ 11, $\frac{3}{4}$ 10. $Code$ —Finery	\$30.25 h No. 3, 15 inches long.
No. 56. 7 sizes. $\frac{3}{8}$ ¹⁶ , $\frac{7}{16}$ ¹⁴ , $\frac{1}{2}$ ¹³ , $\frac{5}{8}$ ¹¹ , $\frac{3}{4}$ ¹⁰ , $\frac{7}{8}$ 9, 18. $Code$ —Firth	%41.00 h No. 4, 20 inches long.
No. 57. 9 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{0}$, $\frac{7}{8}^{9}$, 1^{8} . $Code$ — $Fish$	\$43.50 h No. 4, 20 inches long.
No. $57\frac{1}{2}$. 10 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{9}{16}^{12}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 18. $Code$ —Final Taper Taps. Easy Dies. Separate Stock for each die. Adjustable Tap Wrench Weight 45 lbs.	\$45.75 h No. 4, 20 inches long.
Unless otherwise ordered, we will send all Screw Plates U. S. Standard thread. Can oversize V, S. A. E. Standard, or Whitworth form of thread, when so ordered.	supply Screw Plates with





THE CHAMPION ORDNANCE SCREW PLATE DIE





The Die is a two-piece die which is held in the stock as solid as a one-piece die, cutting a perfect thread at a single cut.

Each Die is attached to its own guide by means of a hinge screw which enables the mechanic to handle the die and guide as a unit.

The adjusting screw when flush with the top of the die cuts exact size threads. By turning this adjusting screw slightly below the surface of the die oversize threads are cut, and when the adjusting screw is turned slightly above the surface of the die undersize threads are cut.

Champion Ordnance Dies are all one diameter fitting the stock which is light and powerful.

CHAMPION ORDNANCE SCREW PLATES

U. S. Standard Sets

Every Set is Packed in a Hardwood Case and Supplied with an Adjustable Tap Wrench. All Taps are Machine-Relieved.



No. 301B. 5 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{16}^{18}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$. $Code$ —Sap
No. $301\frac{1}{2}$ B. 6 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{16}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$. $Code$ —Saha
No. 302B. 5 sizes. $\frac{1}{4}^{20}$, $\frac{3}{8}^{16}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$. Code—Salar
No. 305B. 7 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$. $Code$ —Samon
No. $305\frac{1}{2}$ B. 8 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{9}{16}^{12}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$. Code—Sase
No. 307B. 9 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{14}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{8}^{10}$, $\frac{7}{8}^{9}$, 18. $Code$ —Sare
No. 309B. 10 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}$, $\frac{8}{8}$, $\frac{3}{16}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{9}{16}$, $\frac{1}{2}$, $\frac{9}{16}$, $\frac{2}{8}$, $\frac{3}{8}$, $\frac{7}{8}$, $\frac{1}{8}$. Code—Saw
Unless otherwise ordered we will send all Screw Plates U. S. Standard thread. Can be furnished with oversize V, S. A. E. or Whitworth form of thread, when so ordered.





CHAMPION ORDNANCE SCREW PLATES

S. A. E. Sets

Every Set is Packed in a Hardwood Case and Supplied with an Adjustable Tap Wrench. All Taps are Machine-Relieved.



No. 2, $10\frac{1}{2}$ inches long.
\$24.50
No. 2, $10\frac{1}{2}$ inches long.
15 inches long. Weight
0
\$27.50
15 inches long. Weight
15 inches long. Weight
to mones long. Weight
\$42.00
20 inches long. Weight
20 menes long. Weight
20 inches long. Weight
Lo menes long. Weight

CHAMPION ORDNANCE SCREW PLATES

Combination U. S. Standard and S. A. E. Sets

Every Set is Packed in a Hardwood Case and Supplied with an Adjustable Tap Wrench. All Taps are Machine-Relieved.



No. 311. 10 sizes. U. S. Standard, \(\frac{1}{4}^{20}\), \(\frac{5}{16}^{13}\), \(\frac{3}{6}^{15}\), \(\frac{1}{6}^{15}\), \(\frac{1}{2}^{13}\), \(\frac{1}{6}^{15}\), \(\frac{



THE CHAMPION ELECTRIC SCREW PLATE DIE, COLLET AND GUIDE

Shown in Sections



ordered.

This cut represents the Electric Taper Adjustable Die with its Collet and Guide showing its superior merit in adjustment, accuracy and strength. The Die is shown as when ready for work, screwed into the exact counter-taper of the Collet, both tapers matching, the result being a rigidity and firmness on the full circle not to be obtained in any other way. No screws through Collet, consequently there is no impairment of its strength. One screw adjusting movement brings both halves of the Die to center, assuring equal work for the cutters, a principle which makes the durability of the Die apparent. Its simple adjusting principle makes it an efficient tool, even in the hands of people who are not practical mechanics. This form of adjustment is used on both the Electric and Electric Full Mounted Sets. Other superior points are as follows:

1st. The adjustment is universal, impossible to make one cutter cut more than another, thus always cutting a perfect thread. 2d. The adjustment of our Die can be varied from $_{156}$ to $_{15}$ of an inch to meet the variations of wrought iron, or to allow nuts and bolts to fit together tightly and loosely as may be desired by setting the taper screws to size wanted, and then placing the wrench in the notches in the guide, and with one turn the Die is universally adjusted, where it is placed as solid and firm as though made from one piece of steel. 3d. As our Dies are firm by being held to the guide by the taper of the Die and Collet, and also the two taper screws, making it impossible for chips to get beneath the Dies to cock them up and strip the threads. 4th. It finishes the work at one cut. 5th. For cutting up close to a shoulder use face side of Die downward.

THE CHAMPION ELECTRIC SCREW PLATES

NOTICE—Nos. 2, 5, 5½, 6, 7 and 9 Electric Sets are now Furnished with TWO STOCKS. Every Set is Packed in a Hardwood Case and Furnished with an Adjustable Tap Wrench. All Taps are Machine-Relieved.



5 sizes. \$\frac{1}{2}^{20}\$, \$\frac{5}{16}^{18}\$, \$\frac{3}{16}^{16}\$, \$\frac{7}{16}^{14}\$, \$\frac{1}{2}^{13}\$. \$Code—Ferocious.\$\$18.50 pper Taps. Electric Dies; \$2\frac{1}{16}\$ inches dia. Collets. Stock 18 inches long. Adjustable Tap Wrench No. 2, \$10\frac{1}{2}\$ inches long. No. 1. Taper Taps. Weight 15 lbs. 2. 5 sizes. $\frac{1}{4}$ 20, $\frac{3}{8}$ 16, $\frac{1}{2}$ 13, $\frac{5}{8}$ 11, $\frac{3}{4}$ 10. Code-Ferret.

\$22.75
Taper Taps. Electric Dies; $2\frac{5}{16}$ inches dia. Collets for sizes $\frac{3}{8}$ inch and smaller; $2\frac{3}{4}$ inches dia. for sizes $\frac{1}{2}$ inch and larger. Two Stocks 18 inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 19 lbs. No. 2. 5 sizes. Taper Taps. No. 3. 4 sizes. Taper Taps. \$11, \$\frac{3}{4}\$10, \$\frac{7}{2}\$9, \$18. \$Code—Ferriage. \$26.25 Electric Dies; \$2\frac{3}{4}\$ inches dia. Collets. Stock 29 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight aper Taps. 19 lbs. No. 4. 5 sizes. Taper Taps. ½13, ½11, ¾10, ¾9, 18. Code—Ferrule. \$29.25 Electric Dies; 2¾ inches dia. Collets. Stock 29 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 22 lbs. No. 5. 7 sizes. Taper Taps. Stocks 18 inches and 23 inches long. Adjustable Tap Wrench No. 3, 15 inches long. Weight 24 inch.

No. 5\frac{1}{2}. 8 sizes. \frac{1}{2}^{20}, \frac{1}{16} \sqrt{18} \frac{1}{2} \frac{1}{16} \frac{1}{2} \frac{1}{16} \frac{1}{2} \frac \$44.25 Taper Taps. Electric Dies; $2\frac{1}{16}$ inches dia. Collets for sizes $\frac{1}{7}$ inches dia. for sizes $\frac{1}{2}$ inches dia. for sizes $\frac{1}{2}$ inches dia. Stocks 18 inches and 29 inches long. Adjustable Tap Wrench No. 4, 20 inches long. Weight 35 lbs.

ALL OUR PLATES WARRANTED

Unless otherwise ordered, U. S. Standard threads will be sent. Oversize V, S. A. E., or Whitworth threads furnished, if specially



REGISTERED

NOTICE—Every Set is Packed in a Hardwood Case and is Supplied with an Adjustable Tap Wrench. All Taps are Machine-Relieved.

THE CHAMPION ELECTRIC FULL-MOUNTED SCREW PLATES

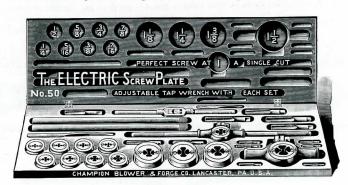


No. 101. 5 sizes. $\frac{1}{2}$ ²⁰ , $\frac{5}{16}$ ¹⁸ , $\frac{3}{9}$ ¹⁶ , $\frac{7}{16}$ ¹⁸ , $\frac{1}{2}$ ¹³ . $Code$ — $Fescue$
No. 102. 5 sizes. \(\frac{1}{4}^{20}\), \(\frac{3}{8}^{16}\), \(\frac{1}{2}^{13}\), \(\frac{5}{8}^{11}\), \(\frac{3}{4}^{10}\). \(Code\)—Festal. \(Code\)—Festal. \(Code\)—Taper Taps. Electric Dies. Separate Stock for each die. Adjustable Tap Wrench No. 3, 15 inches long. Weight 31 lbs.
No. 103. 4 sizes. \$\frac{\xi}{\xi}\$ 11, \$\frac{\xi}{\xi}\$ 10, \$\frac{\xi}{\xi}\$ 18. \$Code—Festival. \$36.50 Taper Taps. Electric Dies. Separate Stock for each die. Adjustable Tap Wrench No. 4, 20 inches long. Weight 30 lbs.
No. 104. 5 sizes. $\frac{1}{2}$ 13, $\frac{5}{8}$ 11, $\frac{3}{8}$ 10, $\frac{7}{8}$ 9, 18. $Code$ — $Festive$
No. 105. 7 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{16}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$. Code—Festivity
No. 105½. 8 sizes. ½0, ½6 l3, ½16, 7 d14, ½13, ½16, ½11, ¾10. Code—Festoon
No. 106. 7 sizes. $\frac{3}{8}$ 16, $\frac{7}{16}$ 14, $\frac{1}{2}$ 13, $\frac{5}{8}$ 11, $\frac{3}{4}$ 10, $\frac{7}{8}$ 9, 18. Code—Fetch
No. 107. 9 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{16}$, $\frac{1}{2}^{13}$, $\frac{5}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{7}{8}^{9}$, 1^{8} . $Code$ —Fetlock
No. $107\frac{1}{2}$. 10 sizes. $\frac{1}{4}^{20}$, $\frac{5}{16}$, $\frac{1}{6}$, $\frac{8}{8}$, $\frac{16}{6}$, $\frac{7}{16}$, $\frac{14}{6}$, $\frac{1}{2}$, $\frac{9}{16}$, $\frac{2}{8}$, $\frac{11}{6}$, $\frac{3}{4}$, $\frac{10}{6}$, $\frac{7}{8}$, $\frac{18}{6}$. Code—Fetter

THE CHAMPION ELECTRIC SCREW PLATES

From 1/4 to 11/2 Inches

Nos. 20, 25, 40 and 50 Electric Sets are Furnished with TWO STOCKS. All Sets are Packed in a Hardwood Case and Furnished with an Adjustable Tap Wrench. All Taps are Machine-Relieved.



No. 20. 6 sizes. \$\frac{1}{2}10, \frac{2}{3}0, \frac{1}{3}, \frac{1}{3}, \frac{1}{3}, \frac{1}{3}, \frac{1}{3} \text{Colde-Fiducial.} \qquad \text{\$\$\sigma \text{sizes 1 inch and smaller; 4 \frac{3}{16} inches dia. for 1\frac{1}{8} inches and larger.} \text{Two Stocks 29 inches and 40 inches long.} \qquad Adjustable Tap Wrench No. 5, 26 inches long. \qquad Weight 50 lbs.}	<i>j</i>
No. 25. 6 sizes. $\frac{3}{4}$, $\frac{1}{4}$, $\frac{1}$	ll E
No. 30. 4 sizes. $1\frac{1}{8}^7$, $1\frac{1}{4}^7$, $1\frac{3}{8}^6$, $1\frac{1}{2}^6$, $Code — Fief$. \$59.00 Taper Taps. Electric Dies; $4\frac{\pi}{16}$ inches dia. Collets. Stock 53 inches long. Adjustable Tap Wrench No. 5, 26 inches long. Weight 50 lbs.	10
No. 40. 11 sizes. \(\frac{1}{2}^2\), \(\frac{1}{6}^{18}\), \(\frac{3}{6}^{18}\), \(\frac{3}{16}^{18}\), \(\frac{1}{6}^{11}\), \(\frac{5}{6}^{11}\), \(\frac{3}{6}^{10}\), \(\frac{7}{6}^{18}\), \(\frac{1}{8}^{1}\), \(\frac{1}{8}^{10}\), \(\frac{7}{6}^{18}\), \(\frac{1}{8}^{17}\), \(\frac{1}{16}^{17}\), \(\frac{1}{6}^{17}\), \(\frac{1}{6}^{18}\), \(\frac{1}{6}^{11}\), \(\fra	
No. 50. 13 sizes. ½29, ½6 18, ½16, ½16, ½12, ½11, ½12, ½11, ½10, ½9, 18, 1½7, 1½7, 1½8, 1½6. Code—Fiend. Taper Taps. Electric Dies; 2½ inches dia. Collets for sizes 1 inch and smaller; 4½ inches dia. for 1½ inches and larger. Two Stocks 29 inches and 53 inches long. Adjustable Tap Wrench No. 2, 10½ inches long, and No. 5, 26 inches long. Weight 80 lbs.	
Unless otherwise ordered, will send all Screw Plates U. S. Standard thread. Can supply Screw Plates with oversize V, S. A. E. Standard, or Whitworth form of thread, when so ordered.	

ALL OUR PLATES WARRANTED





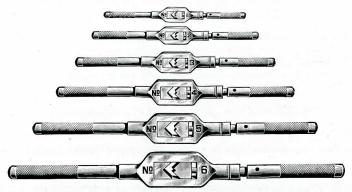
THE CHAMPION PATENTED ELECTRIC ADJUSTABLE TAP WRENCH



The above cut illustrates our Electric Adjustable Tap Wrench, which we believe to be a perfect tool. It will be seen that the Wrench is built "Hub" Shape "Round." The adjustable squares or sockets to hold the taps in wrench are made to fit all sizes of taps, as designated by numbers in list below. This wrench not only holds all sizes of taps solid and firm, but the taps always remain in the center of the wrench, consequently never becomes top-heavy or side-heavy, as is the case with all other wrenches which take in different sizes of taps with the same socket.

No. 3. $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1. Code—Filament. \$2.00 No. 1. $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$. Code—Figurative. . . . 2.50 No. 2. $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$. Code—Figure 3.50

THE CHAMPION ADJUSTABLE TAP WRENCH



The Champion Adjustable Tap Wrench is well built and substantial and is highly recommended to all those desiring an up-to-date Tap Wrench at a reasonable price.

These Tap Wrenches are light, strong and durable with workmanship of the highest order. The jaws are made of the highest grade tool steel, which centralizes the Tap in the holder. The stocks are gunlock finished, the handles are knurled. These Tap Wrenches are made in eight sizes, six of which are illustrated.

The Champion Adjustable Tap Wrenches are furnished with all Screw Plates without extra cost.

No. 1, 1/16 in. to 1/4 in. Length 7 inches. Code—Federfasa\$	1.50
No. 2, $\frac{3}{16}$ in. to $\frac{1}{2}$ in. Length $10\frac{1}{2}$ inches. $Code$ —Feculences	2.00
No. 3, \(\frac{1}{4}\) in. to \(\frac{3}{4}\) in. Length 15 inches. Code—Fecundates	2.50
No. 4, \(\frac{1}{4}\) in. to 1 in. Length 20 inches. Code—Filibustus	3.50
No. 5, ½ in. to 1¼ in. Length 26 inches. Code—Filigrees	6.50
No. 6, \(\frac{3}{4}\) in. to 1\(\frac{1}{2}\) in. Length 34 inches. Code—Fillipeens	8.00
No. 7, 1 in. to 2 in. Length 40 inches. Code—Fillonse	12.00
No. 8, $1\frac{1}{4}$ in. to $2\frac{1}{2}$ in. Length 54 inches. $Code$ —Filleran	15.00

THE CHAMPION PUMPMAKER'S STOCKS AND DIES







\$2.00 All Pump Dies will be sent U. S. Standard thread unless otherwise $\frac{3}{16}$ Die and Stock, complete 2.20 ordered.

THE CHAMPION BIT-BRACE DIE HOLDER



A very convenient tool for pumpmakers, carriage makers and for hundreds of other purposes such as recutting bolts without removing them from their places, sometimes a saving of lots of trouble and expense in taking apart.

The Die is adjustable, allowing a take-up for all wear, making a perfect thread at a single cut.

3/16 in.	1/4 in.	5/16 in.	3/8 in.	7/16 in.	1/2 in.
Die and Holder, complete \$2.00	2.00	2.00	2.15	2.39	2.50
Die only 1.00	1.00	1.00	1.15	1.30	1.50
Holders, separately, each					1.00

Will send above Dies U. S. Standard thread, unless otherwise ordered.

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EASY, ELECTRIC AND ORDNANCE TAPS AND DIES

All Our Taps are Machine-Relieved

Taper Hand Nut Taps furnished with all of our plates. Plug or Bottoming Taps

When ordering Dies always mention which style is wanted, and to avoid mistakes always give diameter of the Die wanted, or the number of the plate for which the Die is wanted.





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	CHAMPION
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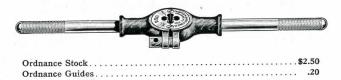
Bottoming

Easy, Electric and Ordnance Dies. V and Taps. Sizes. U. S. S. S. A. E. Whitworth \$1.00 $\frac{24}{20}$ \$0.45 .45 .50 .55 .60 .70 .80 .90 1.05 1.20 1.40 24 20 18 16 14 12 12 11 11 10 10 9 1.00 1.00 1.00 1.1528 24 24 20 20 18 18 16 16 1.13 1.30 1.50 1.75 1.90 2.10 2.35 2.60 8 11 16 13 16 1.60 1.80 2.003.00 3.40 3.75 $i\dot{4}$ $\frac{8}{15}$ 14 12 12 12 4.40 5.00 5.75 7.00 $\frac{2.25}{2.60}$ 3.00

EASY A, B AND FULL-MOUNTED SCREW PLATE STOCKS AND GUIDES



ORDNANCE SCREW PLATE STOCKS AND GUIDES



ELECTRIC SCREW PLATE STOCKS, COLLETS AND GUIDES



PRICES OF ELECTRIC STOCKS USED ON THE ELECTRIC PLATES ONLY

No. 1 E	lectric	Stock,	Length	18 I	nche	es	\$2.00	Electr	ic Colle	ts, includ	ing $1\frac{1}{8}$	to 1½ Inche	s, Comp	plete w	vith Guide,	E 00
No. 2	66	66	66	23	66		2.50									
								Electr	ic Guide	es, $\frac{1}{4}$ to 1	Inch,	each				.25
								Flectr	ic Guide	s 11 to 1	1 Inch	nes, each				1.00
No. 4	"	"	**	40	**		5.00									
No 5	66	66	66	53	66		7.00					$\frac{3}{16}$ " to $\frac{1}{2}$ " in				
			4		120 0	** * *** · · · · · · · · · · · · · · ·		66	66	66	66	9" to 3"	"	"		2.50
Collet a	nd Gu	ide Con	nplete i i, each	or No). 1 to	o No. 9 Electric Screw Plates,	1.00	"	"	"	"	½" to 1"	"	" .		3.00

BLOWER FORGE CO. ****LANCASTER,PA.U.S.A.**



CHAMPION ROUND ADJUSTABLE SPRING DIES



Champion Round Adjustable Spring Die is cut from bar stock, properly hobbed, split on one side and spring tempered on the other side to allow adjustment of the die which is done by a fine pitch screw of the split side, which separates the two halves of the die, or allows them to spring together. Liberal chip space is provided in the clearance holes.

U. S. Standard Thread furnished unless otherwise ordered. Left Hand Dies, sizes, dimensions not listed, and special threads are subject to special prices.

13 16 1//	" dia. thick.	1" dia. 3" thick.	1½'' dia. ½'' thick.	2'' dia. 5'' thick.	2½" dia. ¾" thick.	3" dia. 1" thick
16 04 72 74 06 06 07 72 74 06 07 72 75 06 06 07 75 06 07 07 07 07 07 07 07 07 07 07 07 07 07	.90 -80 -80 -60 -60 -60 -60 -60 -60 -60 -60 -60 -6	.75 .75 .75 .75 .75 .75 .75 .75 .75 .75	1.00 1.00 1.00 1.00 1.00 1.00 1.00	1.25 1.25 1.25 1.25 1.50 1.50 1.75 1.75 2.00 2.00	1.50 1.75 1.75 2.00 2.00 2.25 2.25 2.50 2.50	5.00 5.00 5.00 5.00 5.00 5.00 5.00

STOCKS FOR CHAMPION ROUND ADJUSTABLE SPRING DIES



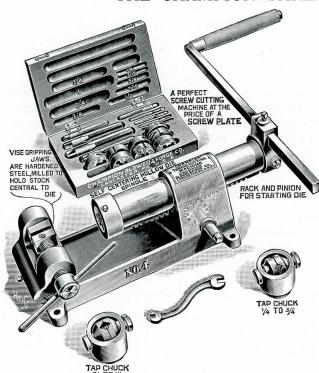
Stocks for Champion Round Adjustable Spring Dies are constructed of malleable, machined and polished with knurled handles to give a firm grip. They are light and well balanced. Set Screw enters the countersink in the die, holding it solid.

Diam. of Dies, Inches.	Length, Inches.	Price.
13 16	6 5	\$.60
1	. 9	1.00 1.50
$\frac{1}{2}$	14 18	2.00
	26	2.50
$\frac{2^{\frac{1}{2}}}{3}$	53	5.00

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THE CHAMPION THREAD-CUTTING MACHINE



With DIES ONLY, or with DIES, TAPS and TAP CHUCKS

A Thread-Cutter to do Quantity Jobs Equal to Machines Costing Ten Times the Price

The Champion Thread-Cutting Machine is a practical tool representing ingenuity in the art of cutting threads to the extent that no iron-worker can afford to do without it. The Champion Thread-Cutting Machine is furnished at a price so reasonable that it produces a new outfit for one who is not already supplied with some machine representing greater investment. It has a rack for starting the thread on the bolt instantly and with the long-leveraged crank which can be shortened or lengthened according to the work, the mechanical eye at once discovers that this is just the machine he wants to place any shop in shape to meet all competition.

No. 1 Champion Thread-Cutting Machine with Dies Only, Cutting $\frac{1}{2}^{20}$, $\frac{5}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{18}$, $\frac{1}{2}^{18}$, $\frac{1}{8}^{11}$ and $\frac{3}{4}^{10}$ inch. Weight 60 lbs. $Code{-Fortlet}$. No. 2 Champion Thread-Cutting Machine with Dies Only, Cutting $\frac{1}{2}^{20}$, $\frac{1}{16}^{18}$, $\frac{3}{8}^{16}$, $\frac{7}{16}^{18}$, $\frac{3}{8}^{11}$, $\frac{3}{8}^{11}$, $\frac{3}{8}^{11}$, $\frac{3}{8}^{10}$, $\frac{3}{8}^{0}$ and 1^{3} inch. Weight 65 lbs. $Code{-Foruli}$.

No. 3 Champion Thread-Cutting Machine with Dies, Taps and Tap Chuck, complete, Cutting $\frac{1}{4}$ ²², $\frac{5}{16}$ ¹⁸, $\frac{3}{8}$ ¹⁸, $\frac{7}{16}$ ¹⁴, $\frac{1}{2}$ ¹³, $\frac{5}{8}$ ¹¹ and $\frac{3}{4}$ ¹⁰ inch. Weight 70 lbs. Code—Forbata.

No. 4 Champion Thread-Cutting Machine with Dies, Taps and Two Tap Chucks, complete, Cutting $\frac{1}{4}$ ²⁰, $\frac{5}{16}$ ¹⁸, $\frac{3}{8}$ ¹⁶, $\frac{7}{16}$ ¹⁴, $\frac{1}{2}$ ¹³, $\frac{5}{8}$ ¹¹, $\frac{3}{4}$ ¹⁰, $\frac{7}{8}$ ⁹ and 1⁸ inch. Weight 75 lbs. Code—Fordab.

No. 5 Champion Thread-Cutting Machine with Dies and Taps, Cutting $\frac{1}{4}$ 20, $\frac{6}{16}$ 18, $\frac{3}{16}$ 16, $\frac{1}{16}$ 13, $\frac{3}{16}$ 11 and $\frac{3}{4}$ 10 Inch, Including Tap Chuck, a 23-Inch Ratchet Stock, 7 Guides, Bit Brace Holder and Tap Wrench Holding $\frac{1}{4}$ to $\frac{3}{4}$ 11nch. Weight 90 lbs. Code—Ferrotypes.

Holding \(\frac{1}{4}\) to \(\frac{3}{4}\) Inch. Weight 90 lbs. Code—Ferral appear.

No. 6 Champion Thread-Cutting Machine with Dies and Taps, Cutting \(\frac{1}{2}^{20}\), \(\frac{5}{6}^{118}\), \(\frac{1}{6}^{118}\), \(\frac{1}{6}^{11}\), \(\frac{1}{6}\) and \(\frac{1}{8}\) Inch, Including \(\frac{2}{8}\) Machine Tap Chucks, a 23-Ratchet Stock, 9 Guides, Bit Brace Holder and Tap Wrench Holding \(\frac{1}{4}\) to 1 Inch. Weight \(\frac{1}{110}\) lbs. \(\frac{Code}{-Fevertrees}\).

NO. 500 CHAMPION POWER THREAD-CUTTING AND TAPPING MACHINE, FURNISHED WITH DIES, TAPS AND TAP CHUCKS

This machine is a powerful geared machine for threading or tapping up to one inch. The gears are large, all being cut, lay in a bath of oil, and run silent. There are two speeds, for light and heavy work. The bearings are large and powerful, the Die Head Bearing being 6 inches long, and all bearings are split so wear can be taken up when necessary. The Vise is self-centering type, operated by right- and left-hand screw attached to Star Handle, which operates both jaws, at the same time centering all work perfectly with one operation. The Lever to feed work is the ratchet-and-rack type, and the whole vise is moved back or forward instantly, the feed lever being set off center to take long rod or bar work. The lever on head operates the machine right- or left-hand to cut the thread and run off the work, being changed instantly without noise, as one set of gears is engaged to cut the thread and the other to reverse the machine. The Dies furnished are adjustable, being 2 ½ inches in diameter, straight-faced round dies, and the taps are long, two tap chucks being furnished to take all sizes of taps up to 1 inch. Furnished with oil reservoir and tube with cock for automatic oiling.

DIMENSIONS

DIMENSIONS

Length over all....4 ft. 2 in. Spread Legs.....20 inches. Spread Legs ... 20 inches.
Height to Top Bed.30 inches.
Height over all ... 42 inches.
Drive Pulley, 12-in. Diameter,
4-in. face.
Speed Pulley should

.....140 R.P.M.

Hole in Spindle 1 7 inch

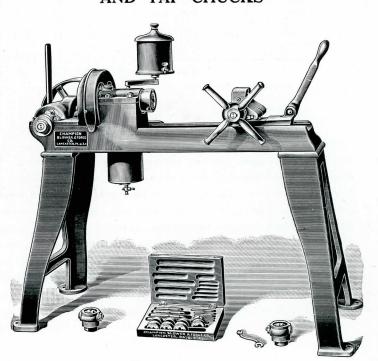
through. Diameter head that holds die $3\frac{1}{5}$ inches. Cuts Thread 14 inches long with one gripping of the Vise.

No. 500 Champion Power Thread-Cutting and Tapping Machine, with Dies, Taps and Tap Chucks Complete. Cutting $\frac{1}{4}^{20}$, $\frac{1}{16}^{18}$, $\frac{1}{8}^{16}$, $\frac{7}{16}^{16}$, $\frac{1}{2}^{13}$, $\frac{1}{8}^{11}$, $\frac{3}{4}^{10}$, $\frac{5}{8}^{9}$ and 1^{8} Inch U. S. Standard Thread. Weight 575 lbs. Code—Segar.

Unless otherwise ordered we send Taps and Dies U. S. Standard Thread. Can supply with oversize V Thread, S. A. E. Standard or Whitworth Thread when specially ordered.

PRICE LIST OF DIES FOR THE CHAMPION THREAD-CUTTING MACHINES

Size	Cost	Size	Cost	Size	Cost
3/16	\$1.80	1/4	\$1.80	5/16	\$1.80
3/8	\$1.90	7/16	\$2.00	1/2	\$2.20
9/16	\$2.50		\$2.75	11/16	
3/4	\$3.25		\$3.30	7/8	\$3.50
15/16.	\$3.80	1	\$4.00		



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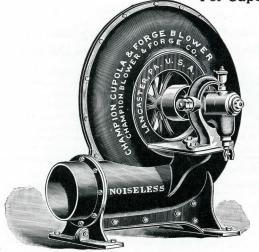






THE CHAMPION STEEL PRESSURE BLOWER

For Cupola Forges and Furnaces

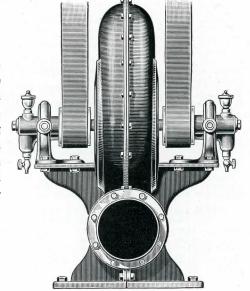


The Champion Steel Pressure Blower is especially adapted for Foundry Cupolas, Furnaces, Machine Shops, Forge Fires, Sand Blast Machines, or any work requiring forcing of air long distances, high pressure or strong blast. Will produce a stronger Blast with same amount of power than any other Blower.

Are regularly furnished with Plain Ring Oiling Bearing of genuine babbitt, but can be supplied with Fafnir Ball Bearings if specially ordered.

No. of Blower.	Price Plain Bearings	Price Ball Bearings	Weight Each, Pounds.	Height in Inches.	Diameter of Pulley in inches.	Face of Pulley in inches.	Outside Diameter of Outlet.	Diam. in Ins. Inside Cupola.	Melting Capacity per Hour in Lbs.	Speed No. of Rev. for Melting Iron.	Pressure of Blast, Ounces.	No. of Forge Fires.	Rev. per Minute for Forge Fires.	Code.
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	\$16.00 24.00 35.00 48.00 59.00 74.00 94.00 120.00 154.00 214.00 300.00	\$42.00 50.00 61.00 77.00 90.00 105.00 125.00 180.00 214.00 282.50 369.00	25 50 110 165 220 320 425 600 775 1,070 1,850	12 15 20 24 26 30 35 40 45 53 64	$\begin{array}{c} 1^{\frac{7}{8}} \\ 2^{\frac{1}{2}} \\ 3 \\ 3^{\frac{3}{8}} \\ 7^{\frac{1}{2}} \\ 4^{\frac{1}{2}} \\ 4^{\frac{1}{2}} \\ 6 \\ 7 \\ 7^{\frac{3}{4}} \\ 9 \end{array}$	$\begin{array}{c} 1_{\frac{3}{8}8} \\ 2 \\ 2_{\frac{1}{8}1 - \frac{1}{2} \cdot \frac{3}{4} + \frac{1}{1} \cdot \frac{1}{2} \cdot \frac{3}{4} + \frac{1}{12} \cdot \frac{1}{2} \cdot \frac{1}{18}} \\ 2_{\frac{1}{8}1 - \frac{1}{2} \cdot \frac{3}{4} + \frac{1}{12} \cdot \frac{1}{2} \cdot \frac{1}{18}} \\ 3_{\frac{1}{8}1 - \frac{1}{2} \cdot \frac{3}{4} + \frac{1}{12} \cdot \frac{1}{2} \cdot \frac{1}{18}} \\ 6_{\frac{1}{8}1 - \frac{1}{2} \cdot \frac{3}{4} + \frac{1}{12} \cdot \frac{1}{2} \cdot \frac{1}{18}} \end{array}$	$\begin{array}{c} 2\frac{3}{4} \\ 3\frac{1}{2}2\frac{1}{2} \\ 4\frac{7}{8} \\ 5 \\ 6 \\ 6\frac{3}{4} \\ 8 \\ 9\frac{1}{4} \\ 11 \\ 12\frac{1}{2} \\ 14 \\ \end{array}$	22 26 30 35 40 46 53 60	1,300 2,000 2,900 4,000 6,000 8,600 12,300 16,500	4,150 3,790 3,275 3,050 2,900 2,820 2,600 2,270	5 6 7 8 10 12 14 15	1 2 4 6 9 15 18 24 30 40 52	4,300 4,200 4,000 3,725 3,103 2,456 2,224 1,814 1,619 1,344 1,200	Filatory Filature Filbert Filch File Filial Filiation Filings Fillet Fillip Finger

Nos. 1 to 3 Champion Steel Pressure Blowers are made with one pulley. Nos. 4 to 10 are made with two pulleys as shown in illustration. The Champion Steel Pressure Blower contains less parts than any other, and is warranted to give entire satisfaction for supplying blast for cupolas, furnaces, forge fires, sand blast machines, and for any work requiring forcing of air long distances, high pressure, or strong blast. All Champion Steel Pressure Blowers are furnished in the regular discharge, *i.e.*, bottom horizontal right hand, unless otherwise specified in order, when left hand can be had at same price. An extra 10 per cent. will be charged for other discharges, illustrations of which will be found on page 119.

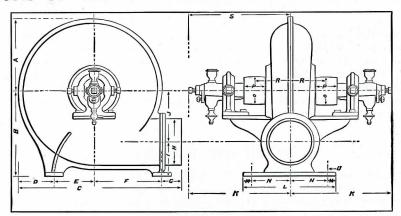






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DIMENSIONS OF THE CHAMPION STEEL PRESSURE BLOWERS



Dimensions in Inches

No.	A	В	C	D	E	F	G	н	I	J	K	L	M	N	o	Р	R	U	No.
1/2	5 7 8	6 7 8	121/2	3	2 5 16	$5\frac{1}{2}$	1 3/4	2 3	2 3	4 1/8	61/2	$5\frac{3}{8}$	916	$2\frac{1}{8}$	1 7 8	$1\frac{3}{8}$	$2\frac{3}{8}$	38	1/2
1	6 9 16	8 11	141	$3\frac{1}{16}$	3 7 8	$5\frac{3}{4}$	$1\frac{3}{4}$	$3\frac{1}{2}$	31/2	$5\frac{3}{16}$	9	91	34	3 7 8	$2\frac{1}{2}$	2	$2\frac{7}{8}$	3 8	1
2	8 13 16	11 11	$19\frac{1}{2}$	3 7 8	$5\frac{1}{2}$	7 7 8	$2\frac{3}{8}$	4 7 8	4 5 8	7 1/16	101	11	34	$4\frac{3}{4}$	3	$2\frac{1}{8}$	$3\frac{7}{8}$	3 8	2
3	103	$13\frac{5}{8}$	$23\frac{3}{4}$	61/2	6	101	$2\frac{5}{8}$	5	4 9/16	9 1 6	115	$12\frac{7}{8}$	$1\frac{3}{8}$	$5\frac{1}{16}$	$3\frac{3}{8}$	$2\frac{1}{2}$	4	$\frac{1}{2}$	3
4	11	15	$25\frac{3}{8}$	7	$6\frac{1}{2}$	103	$2\frac{1}{2}$	6	5	10	$12\frac{5}{8}$	14	1 5/8	$5\frac{3}{8}$	3 7 8	$.2\frac{3}{4}$	4 7 8	$\frac{1}{2}$	4
5	$13\frac{3}{8}$	$16\frac{5}{8}$	$28\frac{3}{4}$	71/2	81	$11\frac{3}{4}$	$3\frac{1}{8}$	$6\frac{3}{4}$	$5\frac{3}{4}$	10 7 8	$14\frac{1}{2}$	16	$1\frac{1}{2}$	$6\frac{3}{4}$	$4\frac{1}{2}$	$3\frac{1}{8}$	$5\frac{3}{8}$	<u>5</u>	5
6	$15\frac{3}{4}$	191	33 7 8	8	83	133	$3\frac{3}{4}$	8	678	$12\frac{3}{8}$	$15\frac{3}{4}$	191	2	7 3	4 7 8	$3\frac{1}{2}$	614	5 8	6
7	171	221	383	81	101	161	4	91	8	144	171	20	2	81/4	6	3 3 4	7	13 16	7
8	19½	25	44	93	$11\frac{3}{4}$	183	4 1 8	11	834	161	21	$22\frac{1}{2}$	2	914	7	$4\frac{1}{2}$	$9\frac{1}{2}$	13 16	8
9	$22\frac{3}{4}$	29	50	103	14	21 1/8	4 1/8	$12\frac{1}{2}$	101/8	187	22	26	2	11	7 3	$5\frac{1}{2}$	$9\frac{1}{2}$	7 8	. 9
10	$27\frac{1}{2}$	42	62	16	174	$25\frac{1}{4}$	$4\frac{1}{8}$	14	12	$25\frac{5}{8}$	$24\frac{3}{4}$	30 %	4	11	9	6 1/8	$11\frac{1}{2}$	78	10

TABLE OF SPEEDS, PRESSURE IN OUNCES, CAPACITY IN CUBIC FEET OF AIR PER MINUTE AND POWER REQUIRED OF THE CHAMPION STEEL PRESSURE BLOWERS

No. of Blower.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.
3	3725	360	1.	4135	405	1.4	4508	445	1.8	4850	480	2.3	5195	515	2.9	5540	550	3.4	5864	580	4.2	6190	610	4.6	6494	635	5.2
4	3103	504	1.4	3445	567	2.	3756	623	2.6	4042	672	3.2	4330	721	4.	4615	770	4.8	4886	812	5.6	5156	854	6.4	5411	889	7.2
5	2456	720	2.	2753	810	2.8	3006	890	3.6	3253	960	4.6	3487	1030	5.6	3728	1100	6.6	3950	1160	7.8	4175	1220	9.2	4382	1270	10.4
6	2224	1008	2.8	2470	1134	3.8	2692	1246	5.	2897	1344	6.4	3102	1442	7.8	3307	1540	9.2	3502	1624	11.	3695	1708	12.8	3878	1778	14.6
7	1814	1440	4.	2026	1620	5.6	2215	1780	7.2	2387	1920	9.2	2563	2060	10.	2733	2200	11.	2900	2320	15.	3055	2440	18.	3213	2540	20.8
8	1619	1872	5.2	1797	2106	7.2	1960	2314	9.4	2009	24 96	12.	2258	2678	14.	2408	2860	15.	2550	3016	20.	2676	3172	23.	2823	3302	27.
9	1344	2592	7.2	1507	2916	10.	1641	3204	12.	1768	3456	15.	1893	3708	17.	2024	3960	21.	2146	4176	26.	2263	4392	30.	2383	4572	35.
10	1000	3312	9.	1330	3726	12.8	1445	4094	15.	1565	4416	18.	1675	4738	20.	1785	5060	25.	1893	5336	30.	2000	5612	35.	2100	5842	40.
Pressure	4-	ounce	э.	5-	-ounc	е.	6-	-ounce	e.	* 7	-ounc	е.	8-	-ounc	е.	9	-ounc	е.	10	-ound	ee.	11	-oun	e.	12	-ound	e.







THE CHAMPION POWER BLOWERS AND EXHAUST FANS

In presenting the Champion Steel Pressure Blowers, Fan Blowers, Exhaust Fans, and Disc Wheels, we call your attention to their simplicity of construction, beauty of design and effectual manner in which they perform the work required. Yet the form is not only pleasing to the eye, but is also that which secures the greatest possible strength with a given amount of material. They have less parts than any similar machines in the market, and are consequently less liable to get out of order. We offer them to the trade, feeling confident that they will meet their wants in giving the best results with the lowest cost consistent with first-class work and the greatest economy of power and fuel. The journal bearings on all Champion Steel Pressure and Fan Blowers, Exhaust Fans and Disc Wheels are thoroughly babbitted and carefully reamed to size. The hammered steel shafts, with their long and heavy bearings, are finished with the utmost care and with absolute precision as to size.

BLAST PIPES

In putting up a Blower for any purpose, one should endeavor to place it as near to the work to be done as possible, as the passage of the air is retarded by the friction along the sides of the pipe, and the loss of pressure from this source increases directly as the length of the pipe and as the square of the velocity of the revolving air. Where great lengths of pipe are necessary the sizes or diameter of same should be proportionately increased, as greater velocity and increased power are required to discharge a given amount of air with the same pressure where small pipes are used—the frictional surface being proportionately greater in small pipes than in large; hence great care should be taken to have the diameter in proportion to the length. All right angles or abrupt turns in Blast Pipes should be avoided, as they greatly diminish their capacity. Easy curves should be introduced in making turns.

THE CHAMPION STEEL PRESSURE BLOWER BLAST WHEEL



The Champion Steel Pressure Blower Blast Wheel with its accompanying shaft and pulleys are a construction of skilled mechanics of the highest degree. The steel plate used is especially rolled and galvanized for the Champion Blast Wheels. The spiders are made from a composition known to be tougher, stiffer, and stronger than any other metal used for the purpose heretofore. The shaft is made from the highest grade of hammered cast steel. The originality in the shape of the Champion Blast Wheel has placed us in a position, after years of experimenting, to be able to manufacture a Blast Wheel which will produce the largest amount of air with the greatest amount of pressure, with less power than any other for running same. The balancing of the Champion Blast Wheel is done on a special made machine not known outside of our works; therefore, we are able to furnish every Blast Wheel balanced to the highest degree of accuracy, taking all vibration from the Blower. Every Blower is run at least one-third higher speed than required in actual use before leaving our works. All Fan Blowers and Exhaust Fan Blast Wheels are built the same as the Steel Pressure only different in design.

THE CHAMPION POWER BLOWER JOURNAL BEARING

The Champion Journal Bearing used on all our Power Blowers has proven itself a practical bearing for Power Blowers. It has a universal adjustment, whereby it comes readily into perfect line with the shaft. The journal bearings being in one solid piece are easily removed without taking the blower apart and by referring to the

illustrations of the journal bearing it will be seen the back lash or end motion of the shaft is taken up by a steel set screw, held by a jam nut at each end of the shaft, there being a fiber washer placed between the ends of the shaft and the set screws, giving the advantage of adjusting and taking up the slightest back lash that may come after years of running.

The Solid or One Piece Journal Bearing, as used on all Champion Power Blowers, is indispensable, as the high speed necessary to run a power blower is bound to jar loose all split bearings. Split bearings cannot be kept tight enough to prevent oil from coming out on the belts and pulleys. These Bearings are all supplied with Ring Oilers, assuring instant appliance of oil to the Bearing surface, with an ample reservoir to catch the return oil—guaranteeing positive oiling at all times.









THE CHAMPION ELECTRIC-DRIVEN STEEL PRESSURE BLOWERS



The Champion Electric-Driven Steel Pressure Blowers are all equipped with the most modern type and design of Motor—guaranteed in all cases to produce the best results wherever applied. The Motor and Blower are both placed on the same base—holding them firmly in place. The Blast Wheel is attached direct to the Motor Shaft. The Motor is of semi-enclosed type and guaranteed to do the work under continuous service with ordinary care.

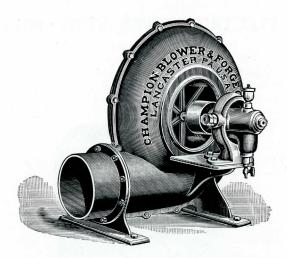
No.	Speed.	Horse Power.	Pres- sure.	Capacity.	110 or 220V D.C.	60 Cycle Single Phase.	60 Cycle 2 or 3 Ph.
3	1,750	$\frac{1}{2}$	$1\frac{1}{2}$ oz.	200 cu. ft.	\$ 160.00	\$160.00	\$ 160.00
3	3,500	5	4 "	360 " "	380.00		350.00
4	1,750	1	2 "	325 " "	230.00	230.00	230.00
4	3,500	10	5 "	575 " "			450.00
5	1,750	$\overset{\circ}{2}$	3 "	600 " "	270.00	290.00	260.00
5	3,500	$1\overline{5}$	8 "	1,030 " "			600.00
6	1,150	$1\frac{1}{2}$	2 "	450 " "	280.00	300.00	270.00
6	1,750	32	3½ "	750 " "	300.00	320.00	290.00
7	1,150	3	3 "	850 " "	385.00	360.00	300.00
7	1,750	$7\frac{1}{2}$	4 "	1,400 " "			520.00
8	850	$5^{\frac{7}{2}}$	2 "	900 " "	600.00		600.00
		71	3 "				650.00
8	1,150	$7^{\frac{1}{2}}$		1,000	650.00		
8	1,750	25	1 0 1	2,100	*******		1100.00
9	850	$7\frac{1}{2}$	$Z_{\overline{2}}$	1,850 " "	720.00		720.00
9	1,150	15	4 "	2,400 " "	900.00		800.00
10	850	15	4 "	2,700 " "	1000.00		950.00
10	1,150	$\overline{35}$	5 "	3,500 " "			1400.00







THE CHAMPION FAN BLOWER



The Champion Fan Blowers are built especially for use where a large volume of blast is required (instead of great pressure). They are adapted for steam boilers, puddling and heating furnaces, dry rooms, refrigerators, forge fires, etc.; also for ventilation. They are constructed in the best possible manner, with only the highest grade material and workmanship. The journal bearings and blast wheels used on these Blowers are our Standard. Are regularly furnished with Plain Ring Oiling Bearing of genuine Babbitt, but can be supplied with Fafnir Ball Bearings if specially ordered. The number of forge fires given in table can only be considered as a guide to go by, as all depends on the size of fires wanted, and in what location the Blower is placed. The best results are obtained when Blower is close to the fires, and elbows, especially short turns, are avoided.

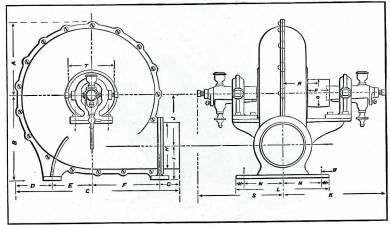
No. of Blower.	Price Plain Bearings.	Price Ball Bearings.	Weight Each, Pounds.	Height in Inches.	Diameter of Inlet.	Outside Diameter of Outlet.	Diameter of Pulley.	Face of Pulley.	Revs. per min. 2-ounce Blast for Boiler Fires.	Revs. per min. 4-ounce Blast for Forge Fires.	No. of Forge Fires.	Sq. Ft. of Boiler, Grate Surface Sup- plied by Blower.	Code.
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	\$16.00 20.00 26.50 33.00 44.00 58.50 73.00 93.00 120.00 200.00 266.00	\$42.00 46.00 52.00 59.00 72.50 90.00 104.50 153.00 180.00 270.00 335.00	30 55 75 125 190 260 380 540 900 1,100 1,425	$ \begin{array}{c} 12 \\ 15 \\ 18 \\ 21\frac{1}{2} \\ 25\frac{1}{2} \\ 29\frac{1}{4} \\ 34 \\ 40 \\ 45 \\ 50 \\ 57 \end{array} $	$\begin{array}{c} 4\frac{1}{2} \\ 5 \\ 5\frac{3}{4} \\ 6\frac{1}{2} \\ 7\frac{1}{2} \\ 9 \\ 10\frac{1}{2} \\ 12 \\ 14 \\ 16 \\ 18 \\ \end{array}$	$ \begin{array}{r} 3\frac{3}{4}\\ 4\frac{1}{2}\\ 5\\ 6\\ 8\\ 9\frac{1}{4}\\ 11\\ 12\frac{1}{2}\\ 14\frac{5}{8}\\ 16\frac{3}{4}\\ 18\frac{1}{2} \end{array} $	$ \begin{array}{c} 2\frac{9}{16} \\ 3 \\ 3 \\ 3\frac{1}{2} \\ 4\frac{1}{4} \\ 5\frac{1}{8} \\ 6 \\ 6\frac{3}{4} \\ 8 \\ 9 \\ 10 \end{array} $	$\begin{array}{c} 1\frac{3}{4} \\ 2\\ 2\frac{1}{2}\frac{3}{4}\frac{4}{12} \\ 3\frac{1}{4} \\ 4\frac{3}{4}\frac{1}{4}\frac{1}{4} \\ 6\frac{1}{2} \\ 8\\ 9\frac{1}{4} \end{array}$	3,300 3,000 2,600 2,300 1,928 1,638 1,410 1,194 1,018 878 766	4,500 4,000 3,600 3,200 2,682 2,279 1,961 1,662 1,417 1,234 1,065	$\begin{array}{c} 1\\2\\4\\6\\9\\15\\18\\24\\30\\40\\52\\\end{array}$	4 6 9 15 24 34 50 72 82 115 195	Findest Finical Finist Finish Finisher Finite Finned Finniken Finny Fintoed Fir

Champion Fan Blowers are specially adaptable to produce forced draft to a Boiler or Heating furnace. In selecting a Blower of the proper capacity required, the outlet of the Blower should be the same size as the Blast Pipe required for each Furnace, as given in the table below.

No. of Square	Cubic Feet of Air to be Supplied.	Diameter in	No. of Square	Cubic Feet of	Diameter in
Ft. of Grate		In. Blast Pipe	Ft. of Grate	Air to be	In. Blast Pipe
Surface.		Required.	Surface.	Supplied.	Required.
5 10 15 20 30 40	200 375 560 760 1,000 1,427	$\begin{array}{c} 3\frac{1}{2} \\ 4 \\ 4\frac{3}{4} \\ 5\frac{3}{4} \\ 7\frac{1}{2} \\ 9 \end{array}$	60 80 95 125 225 300	1,935 2,700 3,670 4,850 6,115 8,155	$ \begin{array}{c} 10\frac{1}{2} \\ 12 \\ 14 \\ 16 \\ 18 \\ 21 \end{array} $



DIMENSIONS OF THE CHAMPION FAN BLOWERS IN INCHES



Dimensions in Inches

No.	A	В	C	D	Е	F	G	н	I	J	К	L	М	N	O	P	R	s	U	No.
1/2	5 5 8	61	131	2 3 4	3 1/8	$5\frac{3}{8}$	1 3 4	3 3 4	2 7 8	$3\frac{3}{8}$	7	8	58	$2\frac{3}{4}$	2 9/16	1 3	3	5 5	5 16	1/2
1	63	7 7 8	$15\frac{1}{2}$	3 5	3 5 8	6	21	$4\frac{1}{2}$	31	4 5 8	$9\frac{3}{4}$	81/2	34	$3\frac{1}{2}$	3	2	$3\frac{1}{2}$	81/8	3 8	1
2	8	93	181	4	43	$7\frac{3}{8}$	$2\frac{1}{2}$	5	4 1 8	$5\frac{5}{8}$	11	10	7 8	4 1/8	3	$2\frac{1}{2}$	$4\frac{1}{2}$	83	38	2
3	91	111	211	5	5	81/2	$2\frac{3}{4}$	6	414	7	$12\frac{5}{8}$	12	1 1/8	4 7 8	$3\frac{1}{2}$	$2\frac{3}{4}$	4 5	$10\frac{1}{8}$	1/2	3
4	107	141	$24\frac{1}{4}$	6	5 3	93	$2\frac{3}{4}$	8	$5\frac{3}{4}$	81/2	$14\frac{3}{8}$	14	1 1/8	$5\frac{7}{8}$	414	$3\frac{1}{2}$	$6\frac{1}{2}$	10 7 8	$\frac{1}{2}$	4
5	123	161	$27\frac{1}{2}$	$6\frac{3}{4}$	6 5 8	10 7 8	3	91	$6\frac{3}{4}$	91/2	$16\frac{3}{4}$	$16\frac{3}{4}$	114	7 1/8	$5\frac{1}{8}$	4	71/4	13	<u>5</u>	5
6	151	181	31	7 3	7 3	$12\frac{1}{2}$	3	11	7 3/4	101	19½	19 1/8	$1\frac{7}{16}$	818	6	4 3	91/8	$14\frac{5}{8}$	5 8	6
7	17	$22\frac{5}{16}$	36	91	9	$14\frac{7}{8}$	$3\frac{1}{2}$	$12\frac{1}{2}$	$9\frac{3}{4}$	$12\frac{9}{16}$	$21\frac{1}{2}$	22	$1\frac{1}{2}$	$9\frac{1}{2}$	6 3	$5\frac{1}{4}$	12	17	34	7
8	19 5	$24\frac{7}{8}$	42	101	$10\frac{3}{4}$	17 1/8	$3\frac{1}{2}$	14 5 8	101	14 5	$24\frac{1}{2}$	271	$1\frac{7}{8}$	$11\frac{3}{4}$	8	$6\frac{1}{2}$	$12\frac{3}{8}$	18	15 16	8
9	23	$27\frac{1}{2}$	$46\frac{1}{2}$	121	$11\frac{3}{4}$	19	$3\frac{1}{2}$	$16\frac{3}{4}$	111	161	$26\frac{1}{4}$	28	$2\frac{1}{2}$	$11\frac{1}{2}$	9	8	$13\frac{1}{2}$	20	78	9
10	251	32	53	141	$13\frac{1}{2}$	$21\frac{1}{2}$	$3\frac{1}{2}$	$18\frac{1}{2}$	131	183	38	$32\frac{1}{2}$	3	131	10 -	91	141	291	78	10
	_						ı					1		2.0		•				1

TABLE OF SPEED

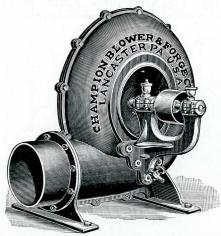
Pressure in Ounces, Capacity in Cubic Feet per Minute, and Power Required to Run the Champion Fan Blower for Boilers, Heating Furnaces and Ventilation

No. of Blower.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	H.P. Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	H.P. Required.		Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.
1/2	1652	140	.1	2310	200	.15	2951	380	.25	3090	400	.5	3590	490	.8	3790	500	.9	4290	590	1	4400	625	1.3	4700	700	1.5	4900	750	1.9
1	1487	200	.15	2087	265	.25	2495	420	.35	2885	470	.7	3270	520	.9	3400	560	1	3870	680	1.2	4000	700	1.5	4300	790	1.7	4500	820	2.1
2	1323	279	.2	1863	395	.3	2274	485	.5	2613	561	.8	2912	626	1	3177	688	1.2	3417	744	1.4	3637	798	1.7	3843	845	2	4037	892	2.5
3	1159	380	.4	1632	539	.5	1992	661	.9	2291	764	1	2550	853	1.2	2782	938	1.5	2992	1014	1.8	3184	1086	2	3365	1153	2.2	3552	1216	2.6
4	976	508	.5	1373	719	.7	1677	882	1	1928	1019	1.2	2147	1138	1.6	2343	1251	1.7	2520	1353	2	2682	1447	2.5	2833	1537	3.5	2974	1622	4.5
5	829	710	.6	1167	1006	.8	1425	1235	1.2	1638	1427	1.5	1824	1593	2	1900	1751	2.5	2140	1894	3.5	2279	2026	4	2455	2153	5	2527	2270	6.2
6	714	967	1	1050	1365	1.4	1227	1675	2	1410	1936	3	1570	2162	3.6	1713	2377	3.8	1842	2570	5.5	1961	2750	7.5	2072	2920	7.2	2176	3081	10
7	604	1346	1.1	852	1904	1.6	1038	2337	2.5	1194	2701	3.5	1330	3016	3.9	1450	3315	4.3	1560	3584	7.6	1662	3836	8.3	1755	4073	9	1843	4297	10.5
8	519	1829	1.5	726	2587	2.2	886	3174	3.7	1018	3669	3.9	1134	4100	6.3	1237	4502	7.9	1331	4869	8.9	1417	5211	10.5	1496	5532	12.8	1571	5838	15
9	449	2413	2	632	3413	3.1	772	4186	4.2	876	4847	5.7	988	5405	7	1078	5941	8.8	1159	6425	10	1234	6875	14	1303	7300	16.8	1368	7703	20
10	387	3048	2.5	545	4311	3.7	665	5291	4.7	766	6115	6	852	6828	7.9	930	7505	9.2	1000	8116	11.2	1065	8684	15.6	1124	9221	20	1180	9730	25
Pressure.	1/2	-ounce	е.	1	-ounce	e.	1 1	-ounc	е.	2-	-ounce		21/2	-ounce		3-	ounce		3½	-ounc	e.	4	-ounce	e.	4	-ound	e.	5	-ounce	ð. ——





THE CHAMPION EXHAUST FAN



The Champion Exhaust Fan is constructed entirely on mechanical principles. Both journal bearings are on one side, allowing no grit or dust to reach them. The Champion Exhaust Fan is especially adapted for ventilating mines and all underground apartments, public buildings, refrigerating in slaughter houses, steamers, cars, etc., removing dust from sand and emery wheels, rag and cotton pickers, grain elevators, buffing machines used by shoe manufacturers, for taking away smoke and gas generated in blacksmith shops, manufacturing establishments and chemical works; steam and vapor from paper machines, and all drying cylinders and drying rooms, sweat from mill stones, offensive odor from try kettles, and dyeing establishments, etc. The Champion Exhaust Fan is regularly made bottom horizontal discharge either right or left hand, i.e., with pulley on right or left side when facing the discharge. The Champion Exhaust Fans can be made top horizontal or upright discharge, for which an extra charge of 10 per cent. is made. The Champion Exhaust Fans are built in the most workmanlike manner; the bearings are long and heavy, the shafting is hammered cast steel, turned and polished with the utmost care. Are regularly furnished with Plain Ring Oiling Bearing of genuine Babbitt, but can be supplied with Fafnir Ball Bearings if specially ordered.

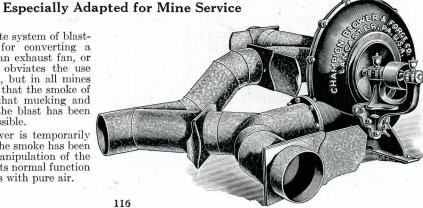
No. of Exhauster.	Price Plain Bearings.	Price Ball Bearings	Weight Each, Pounds.	Height in Inches.	Outside Diameter of Inlet.	Outside Diameter of Outlet.	Diameter of Pulley.	Face of Pulley.	Revolutions per min. 2-oz. Blast for Boiler Fires.	Revolutions per min. 4-oz. Blasst for Forge Fires.	Code.
$\overset{\frac{1}{2}}{1}$	\$16.00 20.00	\$42.00 46.00	$\frac{25}{45}$	12 15	$\frac{4\frac{7}{8}}{5\frac{5}{8}}$	$ \begin{array}{c} 3\frac{3}{4} \\ 4\frac{5}{16} \\ 5\frac{1}{8} \\ 6 \\ 7\frac{7}{8} \\ 9\frac{3}{8} \end{array} $	$2\frac{1}{4}$ $2\frac{9}{16}$	$\frac{1}{2}$	3,300 3,000	4,500 4,000	$Fish fag\\ Firmament$
2	26.50	52.00	65	18	$\begin{array}{c} 6 \\ 7\frac{1}{4} \\ 8\frac{5}{8} \end{array}$	$5\frac{1}{8}$	3	$2\frac{1}{2}$	2,600	3,600	- $Firman$
3	33.00	59.00	105	$21\frac{1}{2}$	$7\frac{1}{4}$	6	$3\frac{1}{2}$	$2\frac{1}{2}$	2,300	3,200	Fiscal
$\begin{bmatrix} 4 \\ 5 \end{bmatrix}$	44.00	72.50	190	$25\frac{1}{2}$	85/8	$7\frac{7}{8}$	$4\frac{1}{4}$	$3\frac{1}{2}$	1,928	2,682	Fissile
5	58.50	90.00	300	$29\frac{1}{4}$	$10\frac{1}{8}$	$9\frac{3}{8}$	$5\frac{1}{8}$	4	1,638	2,279	Fissure
6	73.00	104.50	410	34	11	11	6	$4\frac{3}{4}$	1,410	1,961	Fisticuffs
7	93.00	153.00	520	40	$13\frac{1}{2}$	$11 \\ 12\frac{1}{2}$	7	$5\frac{1}{2}$	1,194	1,662	Fistula
8	120.00	180.00	855	40 45	$15\frac{5}{8}$	$14\frac{1}{2}$	8	$6\frac{1}{2}$	1,018	1,417	Fitful
9	200.00	270.00	1,160	50	$17\frac{1}{4}$	$16\frac{3}{4}$	9	8	878	1,234	Fitting
10	266.00	335.00	1,460	50 57	18	18	10	9 .	766	1,065	Fixture

THE CHAMPION COMBINATION BLOWER-EXHAUSTER

The illustration shows our four-gate system of blastgate and piping in general use, for converting a blower situated at the surface into an exhaust fan, or vice-versa. In mine ventilation it obviates the use of an exhaust fan in most instances, but in all mines where blasting is done it is essential that the smoke of the blast be quickly removed, so that mucking and tramming may begin shortly after the blast has been fired, and as little time be lost as possible.

By means of this piping the blower is temporarily turned into an exhauster, and after the smoke has been drawn out and work commenced, manipulation of the blast gates causes the fan to resume its normal function of blower and to supply the workings with pure air.

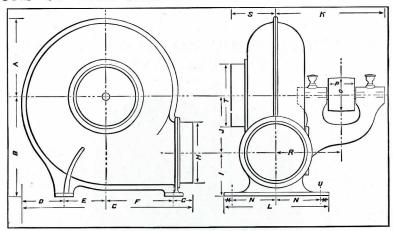
We furnish the fan only.







DIMENSIONS OF THE CHAMPION EXHAUST FANS IN INCHES



Dimensions in Inches

No.	A	В	C	D	Е	F	G	н	I	J	K	L	М	N	О	P	R	s	Т	U	No.
1/2	5 5 8	61	131	2 3 4	31/8	538	1 3/4	3 3 4	2 7 8	338	$6\frac{1}{2}$	8	<u>5</u>	2 3 4	21/4	$1\frac{1}{2}$	414	$3\frac{1}{2}$	4 7 8	5 16	1/2
1	6 5 8	8	$15\frac{3}{4}$	31/2	31/2	61	$2\frac{5}{16}$	4 5 16	$3\frac{5}{16}$	4 11 16	81	83	34	$3\frac{1}{2}$	$2\frac{9}{16}$	2	$5\frac{3}{8}$	4 1/8	$5\frac{5}{8}$	38	1
2	81	91/2	181	3 7 8	$4\frac{3}{8}$	7 3/8	$2\frac{1}{2}$	518	4 1/8	$5\frac{3}{8}$	$9\frac{3}{4}$	$9\frac{1}{2}$	78	4 1/8	3	$2\frac{1}{2}$	$6\frac{1}{2}$	$4\frac{1}{8}$	6	38	2
3	10	111	$21\frac{3}{4}$	4 7 8	$5\frac{1}{8}$	87	$2\frac{3}{4}$	6	$4\frac{1}{2}$	6 3	111	$11\frac{3}{4}$	1	5	$3\frac{1}{2}$.	$2\frac{1}{2}$	7	$5\frac{1}{4}$	71/4	$\frac{1}{2}$	3
4	$11\frac{3}{8}$	14	241	6	5 5	101	25/8	7 7 8	6	8	$14\frac{7}{8}$	141	$1\frac{1}{8}$	6	414	$3\frac{1}{2}$	$9\frac{5}{8}$	$5\frac{3}{4}$	85	$\frac{1}{2}$	4
5	$12\frac{3}{4}$	16	$27\frac{1}{2}$	$6\frac{3}{4}$	$6\frac{1}{2}$	11	3 1/8	93	6 5 8	93	17	$16\frac{3}{4}$	$1\frac{3}{8}$	7	$5\frac{1}{8}$	4	10 7 8	7	101/8	58	5
6	$14\frac{1}{2}$	$18\frac{1}{2}$	311	7 3/4	71/2	$12\frac{1}{2}$	$3\frac{1}{2}$	11	8	$10\frac{1}{2}$	20	191	$1\frac{1}{2}$	81/8	6	4 3	13	81	11	<u>5</u>	6
7	17	22	36	9	9	15	3	$12\frac{1}{2}$	10	12	211	22	$1\frac{1}{2}$	$9\frac{1}{2}$	7	$5\frac{1}{2}$	14	9	131	34	7
8	20	251	42	103	101	$17\frac{1}{2}$	31/2	$14\frac{1}{2}$	10	$14\frac{3}{4}$	26	$25\frac{1}{2}$	$2\frac{1}{2}$	$10\frac{1}{2}$	8	$6\frac{1}{2}$	17	101	$15\frac{5}{8}$	13 16	8
9	23	$27\frac{1}{2}$	461/2	$12\frac{1}{4}$	$11\frac{3}{4}$	19	$3\frac{1}{2}$	$16\frac{3}{4}$	1114	161	29	28	$2\frac{1}{2}$	$11\frac{1}{2}$	9	8	18	121	171	7 8	9
10	25	32	52	13	$13\frac{1}{2}$	$21\frac{1}{2}$	4	18	131	$18\frac{3}{4}$	30½	32	2	14	10	9	20 7 8	13	18	78	10

TABLE OF SPEED

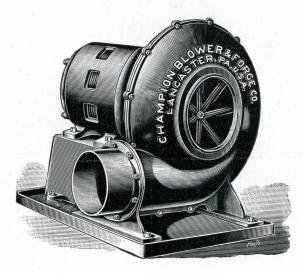
Pressure in Ounces, Capacity in Cubic Feet per Minute, and Power Required to Run the Champion Exhaust Fan for Exhausting Purposes and Ventilation

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No. of Blower.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	H.P. Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	H.P. Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.	Revolutions per Minute.	Cubic Feet of Air per Minute.	Horse Power Required.
1/2	1652	140	.1	2310	200	.15	2951	380	.25	3090	400	.5	3590	490	.8	3790	500	.9	4290	590	1	4400	625	1.3	4700	700	1.5	4900	750	1.9
1	1487	200	.15	2087	265	.25	2495	420	.35	2885	470	.7	3270	520	.9	3400	560	1	3870	680	1.2	4000	700	1.5	4300	790	1.7	4500	820	2.1
2	1323	279	.2	1863	395	.3	2274	485	.5	2613	561	.8	2912	626	1	3177	688	1.2	3417	744	1.4	3637	798	1.7	3843	845	2	4037	892	2.5
3	1159	380	.4	1632	539	.5	1992	661	.9	2291	764	1	2550	853	1.2	2782	938	1.5	2992	1014	1.8	3184	1086	2	3365	1153	2.2	3552	1216	2.6
4	976	508	.5	1373	719	.7	1677	882	1	1928	1019	1.2	2147	1138	1.6	2343	1251	1.7	2520	1353	2	2682	1447	2.5	2833	1537	3.5	2974	1622	4.5
5	829	710	.6	1167	1006	.8	1425	1235	1.2	1638	1427	1.5	1824	1593	2	1900	1751	2.5	2140	1894	3.5	2279	2026	4	2455	2153	5	2527	2270	6.2
6	714	967	1	1050	1365	1.4	1227	1675	2	1410	1936	3	1570	2162	3.6	1713	2377	3.8	1842	2570	5.5	1961	2750	7.5	2072	2920	7.2	2176	3081	10
7	604	1346	1.1	852	1904	1.6	1038	2337	2.5	1194	2701	3.5	1330	3016	3.9	1450	3315	4.3	1560	3584	7.6	1662	3836	8.3	1755	4073	9	1843	4297	10.5
8	519	1829	1.5	726	2587	2.2	886	3174	3.7	1018	3669	3.9	1134	4100	6.3	1237	4502	7.9	1331	4869	8.9	1417	5211	10.5	1496	5532	12.8	1571	5838	15
9	449	2413	2	632	3413	3.1	772	4186	4.2	876	4847	5.7	988	5405	7	1078	5941	8.8	1159	6425	10	1234	6875	14	1303	7300	16.8	1368	7703	20
10	387	3048	2.5	545	4311	3.7	665	5291	4.7	766	6115	6	852	6828	7.9	930	7505	9.2	1000	8116	11.2	1065	8684	15.6	1124	9221	20	1180	9730	25
Pressure.	1/2	-ounce	e.	1	-ounce	e.	13	-ounc	e.	2	-ounce	э.	$2\frac{1}{2}$	-ounce	э.	3-	oun c e		3	i-ounc	e.	4	-ounce	е.	4	-ounc	е.	5	-ounc	е.





THE CHAMPION ELECTRIC-DRIVEN FAN BLOWERS AND EXHAUST FANS



The Champion Electric-Driven Fan Blowers and Exhaust Fans are all equipped with the most modern type and design of Motor—guaranteed in all cases to produce the best results wherever applied. The Motor and Blower are both placed on the same base—holding them firmly in place. The Blast Wheel is attached direct to the Motor Shaft.

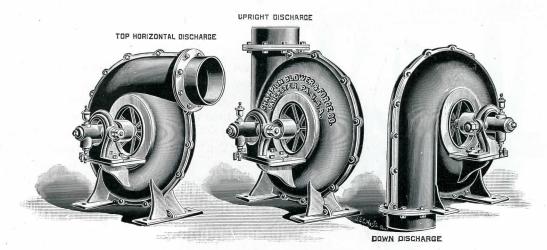
No.	Speed.	H.P.	Pressure.	Capacity.	110 or 220V D.C.	110 or 220V 60 Cycles Single Phase.	220V 60 Cycles 2 or 3 Ph.
1	1,750	1	1 oz.	150 cu. ft.	\$ 60.00	\$ 65.00	\$ 60.00
$\frac{1}{2}$ $\frac{1}{2}$ 1	3,500	1	$2\frac{1}{2}$ "	480 " "	90.00	90.00	90.00
1	1,750	1	1 "	250 " "	70.00	70.00	70.00
1	3,500	1 2	3 "	600 " "	140.00	120.00	120.00
$\frac{1}{2}$	1,750	1614151213	1 "	390 " "	140.00	130.00	130.00
$\frac{1}{2}$	3,500	2 3	31 "	750 " "	220.00	220.00	185.00
3	1,750	$\frac{1}{2}$	$1\frac{1}{2}$ "	600 " "	150.00	140.00	140.00
3	3,500	3	$\frac{1}{4\frac{1}{2}}$ "	1,200 " "	280.00		210.00
4	1,750	ĭ	2 "	900 " "	240.00	240.00	240.00
4	3,500	71	6 "	1,850 " "	450.00		500.00
5	1,150	$7\frac{1}{2}$	1 "	1,000 " "	210.00	210.00	210.00
5	1,750	2	21/4"	1,500 " "	270.00	280.00	265.00
6	1,150	. ī	11/2 "	1,500 " "	280.00	250.00	230.00
$\stackrel{\circ}{6}$	1,750	3	31/2 "	2,400 " "	310.00	310.00	300.00
7	850	2	1 "	1,900 " "	360.00	380.00	300.00
7	1,150	5	2 "	2,700 " "	450.00		450.00
7	1,750	15	413 44	4,000 " "			650.00
8	850	5	11 "	3,100 " "	580.00		580.00
8	1,150	$7\frac{1}{2}$	$1\frac{1}{2}$ " $2\frac{1}{2}$ "	4,200 " "	600.00		600.00
8	1,750	25	6 "	7,000 " "			900.00
9	850	10	2 "	4,800 " "	800.00		800.00
9	1,150	20	31 "	6,400 " "	1000.00		1000.00
10	850	10	$\frac{3\frac{1}{2}}{2\frac{1}{2}}$ "	6,800 " "	900.00		900.00
10	1,150	25	5 "	9,600 " "			1500.00





CHAMPION BLOWERS

Shown in Different Special Discharges



The above illustrations show the different special discharges of Champion Blowers which can be had if specially ordered, for which an additional 10% will be charged. Aways be sure to say, when ordering special discharge, if Blower or Exhauster is to be bolted to the ceiling, or to the floor.

THE CHAMPION BLAST GATE

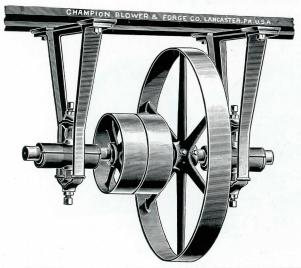


2	inch	Iron.	Weight	2 lbs.	Co	de—Flay	.80	10	inch	Iron.	Weight	40 lbs	s. Code—Fleecy\$ 4.00
$2\frac{1}{2}$	"	"	""	5 "	"	—Flee	1.10	12	"	"	"	50 "	" —Fleet 5.00
$3\frac{1}{8}$	"	"	"	8 "	"	-Fleck	1.30	14	"	"	"	65 "	" — $Fleeting \dots$ 6.50
$4\frac{1}{4}$	"	"	"	10 "		-Flection	1.60	16	"	"	"	80 "	" $-Flemish$ 10.00
5	"	"	"	12 "	"	-Fledge	1.90	18	"	"	"	100 "	" —Fleta 14.00
$6\frac{1}{8}$	"	"	- "	15 "	"	-Fleen	2.00	20	"	"	"	150 "	" —Flanab 16.00
$7\frac{1}{4}$		"	"	25 "	"	-Fleshy	2.50	24	"	"	"	200 "	" —Flevat 18.00
81/4	"	"	"	35 "	"	-Fleece	3.00						

The above are outside measurements.

THE CHAMPION COUNTERSHAFT

For Steel Pressure Blowers, Fan Blowers and Exhaust Fans



When ordering a Champion Blower with Countershaft and Pulleys you should always give speed of main line shafting and the largest pulley that can be used thereon. It is desirable to get all the speed possible from the main line shaft; also always use as large a pulley as possible on the Countershaft, for main belt. Steel Pressure Blowers from Nos. 1 to 3 have but one pulley, and Nos. 4 to 10 have two pulleys, all other Blowers and Exhausters have but one pulley.

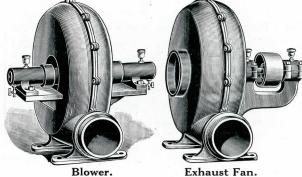
Size of Blower.	Diameter of Driving Pulley in Inches.	Diameter of Pulley for Main Belt in Inches.	Diameter of Shaft.	Code with Two Driv- ing Pulleys.	Price with Two Driv- ing Pulleys.	Price with One Driv- ing Pulley.	Code with One Driving Pulley.
1 1 2 3 4 5 6 7 8 9	12 14 16 18 21 26 30 32 36 40 44	4 5 6 7 8 9 10 12 14 16 18	$1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\$	Flabamus Flabant Flabellate Flabilibus Flabilium Flabitis Flabrale	\$ 44.00 53.00 58.00 72.00 93.50 122.00 141.50	\$ 16.00 19.50 23.00 29.50 36.00 43.50 50.50 65.50 80.50 104.00 125.00	Findebant Flabile Flaccid Flag Firmasters Firmatoris Firmamentura Firmature Firmeis Firmicus Firmiana

THE CHAMPION EXPERIMENTAL BLOWERS AND EXHAUST FANS

The Champion Experimental Blowers and Exhaust Fans are constructed like the Blowers used on many of our Forges and Hand Blowers. While they are built in the most practical manner for hand power, for steam power we can only recommend them where a light current of air is required. They are built to meet a demand for a cheap Power Blower and Exhaust Fan. For a high speed and strictly high grade and substantial Power Blower or Exhaust Fan, refer to pages 114 and 116.

This Blower is intended for blowing fires in portable and small stationary boilers, also for forge fires and various purposes where a small current of air is desired, and the Exhaust Fan is also intended for light work.

No. 0 Champion Blower, 10 In. High, Diameter of Outlet 2 § In., will Blow One Fire. Weight 20 lbs. Code—Faction	7.50
No. 00 Champion Blower, 14 In. High, Diameter of Outlet $3\frac{1}{4}$ In., will Blow Two Ordinary Fires. Weight 40 lbs. **Code—Factionist	9.00
No. 000 Champion Blower, 16½ In. High, Diameter of Outlet 4¾ In., will Blow Three Ordinary Fires. Weight 55 lbs. **Code—Factitious	12.50
No. 01 Champion Exhaust Fan, 10 In. High, Diameter of Outlet 3 In., Diameter of Inlet $3\frac{1}{2}$ In. Weight 20 lbs. $Code$ — $Fabrique$.	7.50
No. 002 Champion Exhaust Fan, 14 In. High, Diameter of Outlet $3\frac{1}{8}$ In., Diameter of Inlet $4\frac{1}{4}$ In. Weight 40 lbs. $Code$ —Fabrilitas	9.00
No. 0003 Champion Exhaust Fan, $16\frac{1}{2}$ In. High, Diameter of Outlet $4\frac{1}{4}$ In., Diameter of Inlet $5\frac{3}{4}$ In. Weight 55 lbs. $Code$ —Fabulation	12.50

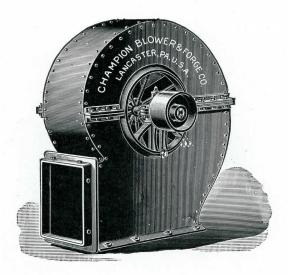


120





THE CHAMPION STEEL PLATE BLOWER



The Champion Steel Plate Blower is built to meet a demand of a large fan to move a large volume of air at a low velocity with the greatest economy of power, as compared with the movement of the same quantity of air at a higher pressure by a smaller fan. A number of uses to which blowers are now applied with marked success require a large quantity of air at an average pressure. The Blower has two inlets, one on each side of the case. The Champion Steel Plate Blower is guaranteed to be built in the same high standard in way of material or workmanship found in our entire line of tools.

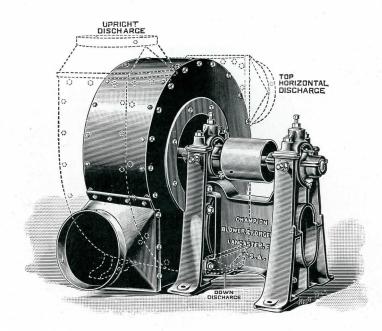
These Fans are built both right or left hand, Bottom or Top Horizontal, up blast or down blast. The Champion Steel Plate Fan is adapted for heating, drying, ventilating and forcing draft through steamboats, to batteries of boilers in electric or other large power plants, and for places where the greatest number of cubic feet of air is required. The running parts are proportioned for strength and durability for use where it is important to have a strong and reliable machine.

Height in	Inside Size of Outlet in	Inside Diam.	Pul	leys.	Average	Cap. Cu. Ft. Air	Price.	Code.
Inches.	Inches.	of Inlet.	Diam.	Face.	Speed.	at 1 Oz. Press.	11100.	Code
50 in.	$18\frac{1}{2} \times 18\frac{1}{2}$	24 3/4	9	7	693	11440	\$220.00	Flexible
60 "	$22\frac{1}{4} \times 22\frac{1}{4}$	$26\frac{5}{8}$	10	8	650	16120	350.00	Flexile
70 "	26 x 26	$34\frac{1}{4}$	11	9	509	22880	480.00	Flexion
80 "	$29\frac{3}{4} \times 29\frac{3}{4}$	$39\frac{1}{8}$	12	10	426	30160	560.00	Flexor
90 "	$33\frac{1}{2} \times 33\frac{1}{2}$	43	14	11	376	39000	690.00	Flexure
100 "	$37\frac{1}{4} \times 37\frac{1}{4}$	$45\frac{3}{4}$	16	12	340	48360	840.00	Flexa





THE CHAMPION ADJUSTABLE STEEL PLATE MILL EXHAUST FAN



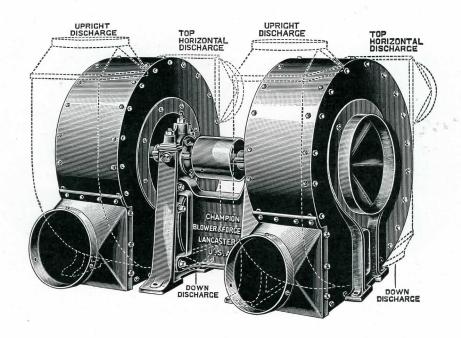
The Champion Adjustable Steel Plate Mill Exhausters are designed for removing shavings, chips and sawdust from woodworking machinery, and for elevating cotton, cotton seed, hulls, etc., or any other fibrous material of the same nature. The bearings are both placed on one side, leaving the inlet unobstructed, so as to allow free ingress for such materials. On these Exhausting Fans we place our Patent Journal Box, which automatically stays in direct line, one Journal Box with the other. We supply with these Journal Boxes self-ring oilers. Are regularly furnished with Plain Ring Oiling Bearing of genuine Babbitt, but can be supplied with Fafnir Ball Bearings if specially ordered.

These Exhausters have housings suitable to either hand or any discharge. All changes can be made in a few minutes, and on the outside of the housings. The advantages of the adjustable Exhauster are shown in the fact that one exhauster will meet any requirements regardless of the hand or discharge, avoiding all cross belts and sharp angles.

Size.	Price Plain Bearings	Price Ball Bearings	Wt. Ea., Lbs.	Height of Shell.	Outside Diam. of Inlet.	Outside Diam. of Outlet.	Diam. and Face of Pulley.	R.P.M.	Code.
25 inches 30 " 35 " 40 " 45 "	\$80.00 90.00 110.00 150.00 185.00	\$130.00 140.00 160.00 200.00 245.00	475 565 600 750 1075	$ \begin{array}{r} 26\frac{1}{2} \\ 32\frac{1}{2} \\ 37\frac{1}{2} \\ 42\frac{1}{2} \\ 48\frac{3}{4} \end{array} $	10 12 14 16 18	10 12 14 16 18	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	2100 to 3100 1700 to 2600 1500 to 2200 1300 to 2000 1100 to 1700	Frat Fratus Fraternity Fratamus Frater
50 " 55 " 60 "	$\begin{array}{c} 220.00 \\ 280.00 \\ 350.00 \end{array}$	280.00 337.00 408.00	1240 1500 1760	$ 53 \\ 59 \\ 66\frac{3}{4} $	20 22 24	$\begin{array}{c} 20 \\ 22 \\ 24 \end{array}$	$\begin{array}{ccc} 8\frac{1}{2} & x & 8\frac{1}{2} \\ 9\frac{1}{2} & x & 9 \\ 10\frac{1}{2} & x & 10 \end{array}$	1000 to 1500 850 to 1400 750 to 1250	Fratora Fratola Fratotar



THE CHAMPION ADJUSTABLE DOUBLE STEEL PLATE MILL EXHAUST FAN

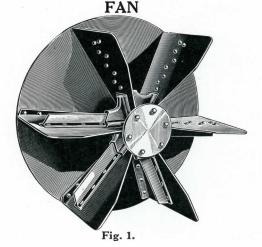


The Champion Double Steel Plate Mill Exhaust Fan is identically the same as the Single Steel Plate Exhauster on the opposite page. In many places a Double Exhauster is preferable to a large Single Exhauster, especially in large mills, where the Exhauster can be located in or near the center of the mill or machinery, and draw from both directions, as it brings the Exhauster nearer the work than it would with a Single Exhauster located at one end of the mill. Are regularly furnished with Plain Ring Oiling Bearing of genuine Babbitt, but can be supplied with Fafnir Ball Bearings if specially ordered.

Size.	Price Plain Bearings	Price Ball Bearings	Wt. Ea., Lbs.	Height of Shell.	Outside Diam. of Inlet.	Outside Square of Outlet.	Diam. and Face of Pulley.	R.P.M.	Code.
25 inches 30 " 35 " 40 " 45 " 50 " 60 "	\$150.00 170.00 200.00 260.00 340.00 400.00 500.00 640.00	\$200.00 221.00 251.00 311.00 400.00 458.00 560.00 700.00	600 735 850 1000 1500 1800 2280 2600	26½ inches 32½ " 37½ " 42½ " 48¾ " 53 " 59 " 62¾ "	10 inches 12 " 14 " 16 " 18 " 20 " 22 " 24 "	10 inches 12 " 14 " 16 " 18 " 20 " 22 " 24 "	$\begin{array}{c} 5 \times 5 \\ 6 \times 6 \\ 7 \times 7 \\ 8 \times 8 \\ 9 \times 9 \\ 10 \times 10^{\frac{1}{2}} \\ 11 \times 11 \\ 12 \times 11^{\frac{1}{4}} \end{array}$	2100 to 3100 1700 to 2600 1500 to 2200 1300 to 2000 1100 to 1700 1000 to 1500 850 to 1400 750 to 1250	Flat Flatulent Flaunt Flavor Flavorous Flawy Flaxen Flaxy

TRADE CHAMPION MARK

STANDARD BLAST WHEEL FOR CHAMPION STEEL PLATE MILL EXHAUST



BLAST WHEEL FOR LIGHT AND FINE MATERIAL



Fig. 2.

The Blast Wheels used in Champion Steel Plate Exhaust Fans are constructed upon a heavy cast-iron hub. The spokes to which the blades are attached and riveted are tee steel cast in the hub, assuring absolute strength and rigidity. The blades are of heavy steel plate riveted to the spokes.

Fig. 1 illustrates the Standard Blast Wheel constructed particularly for heavy, bulky or abrasive material and is extra heavy in all dimensions and sizes.

Fig. 2 shows the Blast Wheel which can be applied where light and fine material is handled, and is constructed for such conditions.

Fig. 3 illustrates the blast wheel where cotton, wool, or textiles, or long stringy material of any kind is to pass through the Exhaust Fan, whereby this material will not clog with them.

Any of these Blast Wheels not regularly supplied can be had if specially ordered.

BLAST WHEEL FOR STRINGY MATERIAL

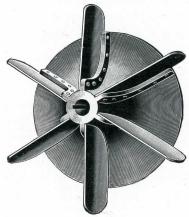
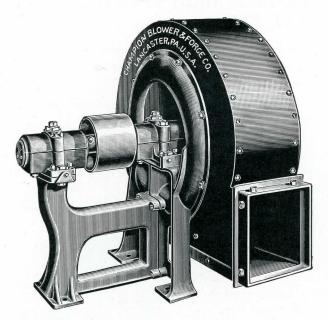


Fig. 3.



THE CHAMPION EXHAUST COTTON FAN



The Champion Exhaust Cotton Fan is especially designed for elevating and conveying Cotton in connection with various types of Cotton Gin Installations throughout the Cotton Sections.

We have made Blowers and Fans of all types for fifty years and when the name "CHAMPION" appears on a Fan it bears with it Fifty Years of Manufacturing QUALITY goods. This Fifty Years of Manufacturing Goods of this Class is a Reputation we are justly proud of as it is an earned reputation and we know that every Ginner can find our manufacture right at his hand in every hamlet of America as well as the World.

Our Cotton Exhaust Fan is built strong, sturdy and dependable. The Blast Wheel is designed to give the highest efficiency and is carefully balanced. In fact, we can truthfully say we have balanced more Blast Wheels than all other manufacturers combined.

The Ball Bearings are SKF, which we furnish regularly,

or if so desired Fafnir Ball Bearings will be furnished if special mention is made.

These Cotton Exhaust Fans are very adaptable for other work, being very desirable for handling light dust of any kind such as dust from sand blast systems, shoe machinery, emery and polishing machines, sanders, exhausting smoke fumes, etc.

The Blast Wheel is constructed with eighteen blades and is not intended for long stringy material or large pieces to pass through the fan but is highly efficient for handling Cotton and light material.

The Fan Housing is built of heavy sheet steel and is so constructed that the Blast Wheel can be removed without taking the Fan Housing apart; this being done by loosening eight bolts on side of fan housing and removing the heavy cast iron side plates, and then full access can be had to blast wheel. These eight tap bolts also permit the Fan Housing to be swung around to give any discharge of outlet of fan that may be desired.



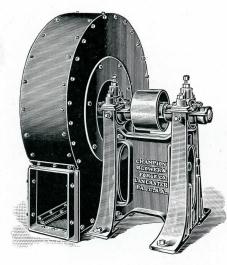
Champion Cotton Fan Blast Wheel

N	Single Fans.												Doub	le Fans.				
Size.	Price.	Weight.	Height over all.	Length over all.	Width over all.	Size of Square Outlet.	Size of Inlet.	Diameter of Wheel.	Width of Case.	Diameter of Shaft.	Diameter and Face of Pulley.	or 1 micy.	Code.	Price.	Weight.	Width over all.	Diameter and Face of Pulley.	Code.
25" 30" 35" 40" 45" 50" 55" 60"	\$130.00 140.00 160.00 200.00 245.00 280.00 337.00 408.00		$ \begin{array}{r} 32 \\ 37 \\ 41\frac{1}{2} \\ 46 \\ 51 \\ 56 \\ \end{array} $	$ \begin{array}{c} 26 \\ 29\frac{1}{2} \\ 34 \\ 38\frac{1}{2} \\ 42\frac{1}{2} \\ 47 \\ 52 \\ 56\frac{1}{2} \end{array} $	$ \begin{array}{c} 33 \\ 35\frac{1}{2} \\ 38 \\ 44\frac{1}{2} \\ 48\frac{1}{2} \\ 51 \\ 55 \\ 60 \end{array} $	$\begin{array}{c} 8\\ 9^{\frac{5}{8}} \\ 11^{\frac{1}{8}} \\ 12^{\frac{5}{8}} \\ 14^{\frac{1}{8}} \\ 15^{\frac{1}{8}} \\ 17^{\frac{1}{2}} \\ 19^{\frac{1}{4}} \end{array}$	11 13 15 17 19 21 23 25	$ \begin{array}{r} 16\frac{3}{4} \\ 20 \\ 23\frac{3}{8} \\ 26\frac{3}{4} \\ 30\frac{1}{8} \\ 33\frac{1}{4} \\ 36\frac{1}{2} \\ 40 \end{array} $	$\begin{array}{c} 8\\ 9^{\frac{1}{4}}\\ 10^{\frac{3}{4}}\\ 12^{\frac{1}{4}}\\ 13^{\frac{3}{4}}\\ 15^{\frac{1}{4}}\\ 17\\ 18^{\frac{5}{8}} \end{array}$	$\begin{array}{c} 1\frac{5}{16} \\ 1\frac{5}{16} \\ 1\frac{7}{16} \\ 1\frac{11}{16} \\ 1\frac{15}{16} \\ 1\frac{15}{16} \\ 2\frac{3}{16} \\ 2\frac{3}{16} \end{array}$		$\begin{array}{c} 6\\ 6\frac{1}{2}\\ 6\frac{1}{2}\\ 7\frac{1}{2}\\ 8\frac{1}{2}\\ 10\frac{1}{2}\\ 11\frac{1}{2} \end{array}$	Gream Greamt Gredo Greed Grenate Groad	458.00 560.00	690 870 1100 1380 1850 2150	$ \begin{array}{c} 47 \\ 51 \\ 57\frac{3}{8} \\ 62\frac{5}{8} \\ 68 \\ 73 \end{array} $	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Grunt Grescent Gress Grevice Grero Grevert Grat Gonstet









Champion Slow Speed Reversible Mill Exhaust Fans are the low power, slow speed type, avoiding belt slippage and vibration, saving from 15% to 50% in power over the average high speed type Exhaust Fans.

They are designed for general mill work, being exceptionally strong in construction, made with most modern wings balanced perfectly.

Bearings are all Double Ring oiling type, heavily lined with genuine babbitt, split so wear can be taken up when necessary, and each bearing is the self-aligning type, pivoted between four heavy screws which are locked with lock nuts, eliminating a hard running fan.

The bearings are well supported by heavy cast frame, which can be securely fastened to the floor.

On all Champion Slow Speed Exhausters, the material handled does not come in contact with the back side sheet of the fan housing as each blade is riveted securely to coneshaped wheel of most efficient type.

All Champion Slow Speed Exhausters are reversible so outlet can be thrown up, down or out, and each fan can be changed from right to left hand, the most convenient type fan manufactured, which can be adjusted to meet all conditions.

The maximum height as noted is for bottom horizontal discharge. When housing is swung around for other discharges, dimensions will change.





Champion High Efficiency Slow Speed Blast Wheel

Specifications of Champion Single Slow Speed Reversible Mill Exhausters

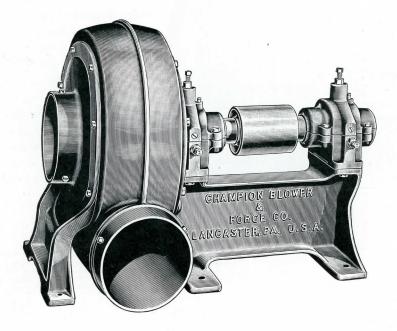
	•						
Size Fan.	Outside Diam. of Inlet in Inches.	Outside Diam. of Outlet in Inches.	Height.	Pulleys.	Weight.	List.	Code.
25	11	$9\frac{5}{8} \times 8\frac{1}{2}$	36	6 x 4½	715	\$ 95.00	Avora
30	13	$11\frac{3}{4} \times 10$	41	8×5	900	132.00	Abakus
35	15	$13\frac{3}{4} \times 11\frac{1}{2}$	49	9×6	1060	154.00	Abalroa
40	17	$15\frac{5}{8} \times 13$	55	10 x 7	1175	180.00	Abante
45	19	$17\frac{5}{8} \times 14\frac{5}{8}$	62	11 x 8	1575	240.00	Abarbar
50	21	$19\frac{1}{4} \times 16\frac{5}{8}$	69	12 x 8	1650	290.00	Abarim
55	23	$21\frac{1}{2} \times 18\frac{1}{2}$	76	13 x 10	1750	364.00	Abashed
60	$\frac{25}{25}$	$23\frac{1}{2} \times 20^{2}$	83	14 x 11	2200	452.00	Abasis
70	29	$27^{\circ} \times 23$	97	16 x 12	3000	600.00	Abattoir
80	33	31 x 26	110	20 x 14	4400	725.00	Abatude
90	$37\frac{1}{2}$	$35\frac{1}{2} \times 29\frac{1}{2}$	123	$28 \times 14\frac{1}{2}$	6000	945.00	Abaxial

Specifications of Champion Double Slow Speed Reversible Mill Exhausters

Size Fan.	Outside Diam. of Inlet in Inches.	Outside Diam. of Outlet in Inches.	Height.	Pulleys.	Weight.	List.	Code.
30 35 40 45 50 55 60 70 80	13 15 17 19 21 23 25 29 33	$\begin{array}{c} 11\frac{3}{4} \times 10 \\ 13\frac{3}{4} \times 11\frac{1}{2} \\ 15\frac{5}{8} \times 13 \\ 17\frac{5}{8} \times 14\frac{5}{8} \\ 20\frac{1}{4} \times 16\frac{5}{8} \\ 21\frac{1}{2} \times 18\frac{1}{2} \\ 23\frac{1}{2} \times 20 \\ 27 \times 23 \\ 31 \times 26 \end{array}$	41 49 55 62 69 76 83 97 110	$\begin{array}{c} 8 \times 7^{\frac{1}{2}} \\ 9 \times 8^{\frac{1}{2}} \\ 11 \times 9^{\frac{1}{2}} \\ 12 \times 10^{\frac{1}{2}} \\ 13 \times 11^{\frac{1}{2}} \\ 14 \times 12^{\frac{1}{2}} \\ 16 \times 15 \\ 20 \times 18 \\ 24 \times 22 \end{array}$	850 1100 1425 1900 2600 3200 4000 5350 6400	\$234.00 260.00 322.00 404.00 512.00 655.00 808.00 1022.00 1325.00	Abbacy Abbaye Abbiod Abbioca Abbat Abdao Abdara Abdeste Abdico



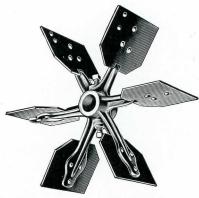
CHAMPION TYPE "A" CAST IRON ADJUSTABLE EXHAUST FANS



Champion Type "A" Cast Iron Adjustable Exhaust Fans are of extremely high grade and popular construction for general and universal use, where a ventilating, exhausting or blast-producing blower is needed. Are specially constructed for handling cotton hulls or burrs or any heavy material of like nature.

The wing construction is extremely efficient; the bearings are of standard Champion construction of ring oiling type. The Exhaust Fan is adjustable both as to discharge and hand, and is built in six popular sizes.

No. of Blower.	'Price Plain Bearings.	Price Ball Bearings.	Weight Each, Pounds.	Height in Inches.	Outside Diameter of Inlet.	Outside Diameter of Outlet.	Diameter of Pulley.	Face of Pulley.	Revs. per Min. for 1-ounce Pressure.	Revs. per Min. for 2-ounce Pressure.	Code.
1-A	\$26.50	\$62.00	100	141	5	5	3	$4\frac{1}{4}$	2200	2800	Drilo
2-A	33.00	68.00	150	$16\frac{1}{2}$	6	6	4	$4\frac{1}{4}$	1750	2400	Drimacus
3-A	44.00	80.00	225	201	7	7	4	$5\frac{1}{4}$	1600	2050	Drimya
4-A	58.50	94.00	325	$24\frac{1}{2}$	8	8	4	$5\frac{1}{4}$	1450	1750	Drindro
5-A	73.00	118.00	400	$27\frac{1}{2}$	9	9	5	61/4	1150	1550	Dripade
6-A	93.00	137.00	500	31	10	10	5	$6\frac{1}{4}$	1050	1450	Dripstone



Champion Type "A" Exhaust Fan Blast Wheel



CHAMPION TYPE "C" MANIVANE EXHAUST FANS



Type "C" Beit Driven Units

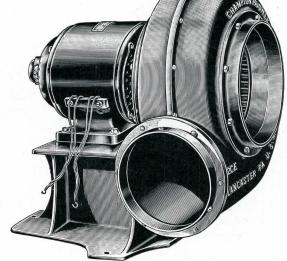
Champion Type "C" Manivane Exhaust Fans are designed to handle a large volume of air at relatively low speed, thereby running practically silent, making them extremely serviceable for use in places where quietness is demanded.

The Housings are of cast iron, constructed that they can be adjusted for eight different discharges, either right or left hand, and the Fans are furnished with standard Champion Ring Oil Bearings mounted on heavy supports; making them extremely efficient and durable for all drying, cooling and ventilating purposes.

No. of Blower.	Price.	Weight Each, Pounds.	Height in Inches.	Outside Diameter of Inlet.	Outside Diameter of Outlet.	Diameter of Pulley.	Face of Pulley.	Revs. per Min. for 1-ounce	Revs. per Min. for 2-ounce	Code.
00-C 0-C 1-C 1 ¹ / ₄ -C 1 ¹ / ₂ -C	\$30.00 45.00 50.00 65.00 90.00	20 40 70 100 150	$\begin{array}{c} 7\frac{1}{4} \\ 10\frac{3}{8} \\ 12\frac{5}{16} \\ 15\frac{7}{8} \\ 17\frac{1}{16} \end{array}$	$\begin{array}{r} 3\frac{1}{8} \\ 4\frac{9}{16} \\ 6\frac{1}{2} \\ 7\frac{7}{8} \\ 9\frac{1}{2} \end{array}$	$\begin{array}{c} 2\frac{1}{4} \\ 3\frac{11}{16} \\ 4\frac{11}{16} \\ 6 \\ 7\frac{1}{8} \end{array}$	$\begin{array}{c} 1\frac{5}{16} \\ 2\frac{1}{4} \\ 2\frac{1}{4} \\ 2\frac{1}{4} \\ 3\frac{1}{2} \\ 4 \end{array}$	$\begin{array}{c} 1\frac{1}{8} \\ 1\frac{1}{8} \\ 1\frac{1}{4} \\ 2\frac{1}{4} \\ 2\frac{1}{4} \end{array}$	5540 3700 2770 2220 1850	7850 5240 3920 3140 2620	Dunte Duodez Duovir Dupais Duped
$\begin{array}{c} \text{2-C} \\ \text{2}\frac{1}{2}\text{-C} \\ \text{3-C} \\ \text{3}\frac{1}{2}\text{-C} \end{array}$	140.00 225.00 300.00 400.00	300 400 500 700	$ \begin{array}{r} 24\frac{1}{8} \\ 29\frac{1}{4} \\ 33\frac{3}{4} \\ 39\frac{1}{4} \end{array} $	$\begin{array}{c} 12\frac{1}{2} \\ 15\frac{1}{4} \\ 18\frac{1}{2} \\ 21\frac{1}{4} \end{array}$	$ \begin{array}{c} 9\frac{1}{2} \\ 11\frac{1}{2} \\ 13\frac{1}{2} \\ 16 \end{array} $	5 6 8 10	$\begin{array}{c} 3\frac{1}{4} \\ 3\frac{1}{2} \\ 3\frac{3}{4} \\ 4\frac{1}{2} \end{array}$	1255 1002 838 717	1770 1419 1185 1012	Dupery Dupiez Duplo Duracla

These Fans are similar to the Type "C" Exhauster, arranged with Direct Connected Motors, mounted on a cast iron pedestal to which the Fan Case is likewise attached; making these equipments extremely rigid and durable for general blast-producing and ventilating purposes. In all other details constructed like Type "C" Fan.

No.	R.P.M.	H.P.	Cu. Ft. per Min.	Pressure.	Height.	Weight Each, Pounds.	List.
00-CE 0-CE 1-CE 1-CE 1-CE 1\frac4-CE 1\frac4-CE 1\frac4-CE 1\frac4-CE 1\frac2-CE	1750 1750 1160 1750 3500 1160 1750 3500 1160 1750	$\begin{array}{c} \frac{1}{2}0\\ \frac{1}{2}0\\ \frac{1}{2}0\\ \frac{1}{2}0\\ \frac{1}{2}0\\ \frac{1}{2}0\\ \frac{1}{2}1\\ \frac{1}{2}2\\ \frac{1}{2}1\\ \frac{1}{2}1\\$	30 100 160 240 500 210 480 980 560 825	14 in. 14 in. 14 in. 15 in. 21 in. 21 in. 1 in. 1 in. 1 in. 1 in. 1 in.	7 in. 7 in. 10 in. 10 in. 10 in. 14 in. 14 in. 17 ½ in. 17 ½ in.	25 45 75 85 115 110 130 175 160 195	\$48.00 55.00 64.00 72.00 130.00 80.00 115.00 110.00 145.00
2-CE 2-CE $2\frac{1}{2}$ -CE $2\frac{1}{2}$ -CE 3-CE 3-CE $3\frac{1}{2}$ -CE $3\frac{1}{2}$ -CE	1160 1750 850 1160 850 1160 850 1160	$2^{\frac{3}{4}}$ $2^{\frac{3}{4}}$ $2^{\frac{3}{4}}$ 5 10	$ \begin{array}{c} 1415 \\ 2120 \\ 2160 \\ 2910 \\ 3470 \\ 4800 \\ 5760 \\ 7850 \end{array} $	$1\frac{1}{2}$ in. 3 in. 1 in. 2 in. $1\frac{1}{2}$ in. 3 in. 2 in. 4 in.	$24\frac{1}{2}$ in. $24\frac{1}{2}$ in. 30 in. 30 in. $33\frac{1}{2}$ in. $33\frac{1}{2}$ in. $39\frac{1}{2}$ in. $39\frac{1}{2}$ in.	325 360 460 500 600 800 900 975	280.00 350.00 400.00 460.00 500.00 600.00 750.00 900.00

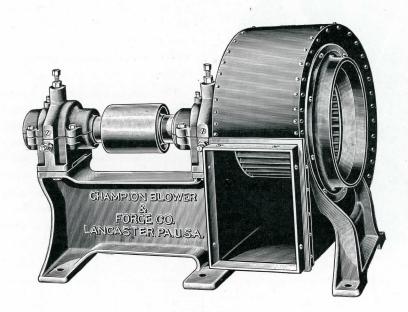


Type "CE" Direct Connected Units





CHAMPION TYPE "S" MANIVANE STEEL PLATE EXHAUST FANS



Champion Type "S" Manivane Steel Plate Exhaust Fans are built with steel plate housing attached to heavy east iron supports, which makes the fan construction extremely rigid. The method of attaching these side plates is such that the housing can be adjusted to eight different discharge directions, either right or left hand, and together with the wheel construction produces a Fan which running at relatively low speed will produce high efficiency. The wheel can be removed from the housing by removal of either side plate.

These Fans are particularly adaptable for furnishing air or for exhausting purposes; handling smoke, gas or fine dust directly through the fan, or for heating, cooling or drying purposes.

No. of Blower.	Price.	Weight Each, Pounds.	Height in Inches.	Outside Diameter of Inlet.	Outside Diameter of Outlet.	Diameter of Pulley.	Face of Pulley.	Revs. per Min. for 1-ounce Pressure.	Revs. per Min. for 2-ounce Pressure.	Code.
11-S	\$110.00	170	14 5 16	71/8	8	31/2	21/4	2220	3140	Duale
$1\frac{1}{2}$ -S	150.00	190	167	$9\frac{1}{2}$	$9\frac{1}{2}$	4	$2\frac{1}{4}$	1850	2621	Dualine
2-S	185.00	225	$22\frac{3}{8}$	$12\frac{1}{2}$	125	5	31/4	1255	. 1770	Duality
$2\frac{1}{2}$ -S	220.00	300	27 5	$15\frac{1}{4}$	$15\frac{1}{2}$	6	$3\frac{1}{2}$	1000	1420	Dubiety
3-S	280.00	360	327	$18\frac{1}{2}$	$18\frac{1}{2}$	8	$3\frac{3}{4}$	838	1185	Dubloen
$3\frac{1}{2}$ -S	400.00	470	381	211/4	$21\frac{1}{2}$	10	$4\frac{1}{2}$	718	1012	Dubrar
4-S	550.00	600	$46\frac{1}{2}$	$26\frac{1}{2}$	$24\frac{3}{4}$	14	5	622	880	Ducally
$4\frac{1}{2}$ -S	700.00	800	517	$29\frac{3}{4}$	$27\frac{3}{4}$	16	5	552	780	Ducao



Champion Type "S" Manivane Exhaust Fan Blast Wheel





THE CHAMPION DISC WHEEL AND MINE FAN



The New Champion Disc Wheel and Mine Fan is strictly first class, built strong and substantial. Its blades are made of special rolled steel, mechanically fitted into a grooved hub, where they are securely fastened. They are built with workmanship of the very highest grade, and run entirely noiseless, and are guaranteed to give perfect satisfaction.

The bearings are regularly furnished with Plain Ring Oiling Bearing of genuine Babbitt, but can be supplied with Fafnir Ball Bearings if specially ordered, and the shaft is made from hammered steel, extra length, so that pulleys can be placed on either side, thus preventing cross belts.

These fans are especially constructed for ventilating, and can be used for factories, laundries, restaurants, offensive closet ventilation; in fact, any place where a supply of fresh air is desired.

Diameter of Wheel, Inches.	Price Plain Bearings.	Price Ball Bearings.	Code.	Weight.	Diam- eter of Pulley.	Face of Pulley.	Diameter of Wheel, Inches.	Price Plain Bearings.	Price Ball Bearings.	Weight.	Code.	Diam- eter of Pulley.	Face of Pulley
18	\$ 32.00	\$ 62.00	Flecker	95	4	2	48	\$100.00	\$150.00	400	Flimsy	9	4
24	40.00	70.00	Flight	110	4	2	54	140.00	190.00	425	Flinch	9	4
30	50.00	80.00	Filter	165	6	2	60	200.00	220.00	_ 520	Fling	, 10	5
36	66.00	95.00	Flighty	180	6	2	72	250.00	300.00	625	Flinty	12	$5\frac{1}{2}$
42	90.00	140.00	Flimsiness	350	8	$3\frac{1}{2}$	84	300.00	350.00	750	Flip	14	6

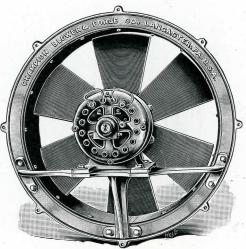
THE CHAMPION ELECTRIC DISC WHEEL

The Champion Electric Disc Wheels are of the most compact and up-todate construction possible, and are especially adapted for removing offensive odors and supplying a sufficient quantity of fresh air.

The motor is attached to the frame of the disc wheel by a bracket and is furnished complete and ready to be installed in an opening in the wall or in the window.

The Champion Electric Disc Wheels are made in five sizes, all current and voltages as listed below.

Size.	Voltage of Motors.	Cubic Ft. Air Per Minute.	Approx. Weight Complete.	Speed R.P.M.	List Prices.	Code.
12 in.	110-220	1,000	50 lbs.	2,700	\$ 40.00	Fleckamus
18 in.	110-220	2,200	95 lbs.	1,200	70.00	Flibat
24 in.	110-220	4,000	190 lbs.	900	110.00	Flivora
30 in.	110-220	6,200	295 lbs.	900	140.00	Fliway
36 in.	110-220	12,000	350 lbs.	800	250.00	Flyer
	A		- 10			







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TABLE OF SPEEDS, CAPACITIES, ETC., OF CHAMPION DISC WHEELS AND MINE FANS FOR MINE VENTILATION

	½" Pressure.		³″ Pressure.		1/′]	½" Pressure.		$\frac{5}{8}$ " Pressure.		¾" Pressure.		1" Pressure.		$1\frac{1}{2}$ " Pressure.							
Size Fan.	C. F. M.	R. P. M.	Н. Р.	C. F. M.	R. P. M.	Н. Р.	C. F. M.	R. P. M.	Н. Р.	C. F. M.	R. P. M.	Н. Р.	C. F. M.	R. P. M.	Н. Р.	C. F. M.	R. P. M.	Н. Р.	C. F. M.	R. P. M.	H. P.
18"	1,000	625	.20	2,100	725	.45	3,300	825	.75	4,500	925	1.00	5,600	1050	1.75	6,800	1125	2.25	8,100	1400	4.00
24''	2,000	560	.25	3,500	650	.50	4,700	775	1.00	5,200	875	1.25	6,500	925	2.00	8,700	1025	3.00	10,500	1300	5.00
30′′	3,500	500	.35	4,500	600	.75	6,000	725	1.50	7,900	825	2.00	9,900	875	2.50	11,900	975	3.75	13,900	1200	8.00
36′′	6,000	450	.50	7,500	560	1.00	9,200	680	2.00	10,300	730	2.50	12,900	790	3.75	14,700	910	5.75	16,000	1120	11.50
42"	9,000	400	1.00	10,750	485	1.75	12,350	570	2.75	15,000	640	4.00	16,500	695	5.25	18,500	700	8.00	22,300	975	14.50
48''	12,200	350	1.25	14,700	435	2.25	16,700	500	3.50	18,700	560	5.25	21,000	615	7.00	24,200	700	10.75	29,000	860	19.00
54"	15,500	305	1.50	18,500	380	2.75	21,100	440	4.50	24,000	495	6.50	26,800	535	8.75	30,500	620	13.75	37,100	750	25.00
60′′	18,500	280	2.00	22,500	340	3.50	25,700	400	5.50	29,500	450	8.00	33,800	485	11.00	38,000	560	16.00	45,500	685	32.00
72"	25,800	230	2.50	31,000	285	5.00	36,400	330	8.00	40,500	375	11.25	46,000	410	15.25	53,500	465	24.00	64,000	565	44.00
84"	35,500	200	4.00	43,500	245	7.00	49,500	275	10.75	54,000	315	15.50	61,500	340	21.00	70,500	400	33.00	85,500	485	62.00

If resistance is less than has been assumed in above table, the pressure will be lower and the volume of air delivered will be more and horsepower less.

TABLE OF SPEEDS, CAPACITIES, ETC., OF CHAMPION DISC WHEELS AND MINE FANS—OUTLET BEING UNOBSTRUCTED

Size Fan.	C. F. M.	R. P. M.	Н. Р.	C. F. M.	R. P. M.	Н. Р.	C. F. M.	R. P. M.	Н. Р.	C. F. M.	R. P. M.	H. P.	C. F. M.	R. P. M.	H. P.	C. F. M.	R. P. M.	Н. Р.
18"	1,000	400	.01	2,000	525	.05	3,000	625	.08	5,500	725	.15	8,000	850	.40	10,500	975	1.00
24"	1,900	325	.02	3,500	475.	.08	6,000	575	.20	8,500	650	.40	11,000	800	.50	13,500	950	1.10
30′′	3,000	275	.03	5,900	400	.10	8,400	510	.30	11,000	625	.50	13,300	750	.90	15,400	925	1.50
36"	5,400	230	.05	7,900	350	.15	10,400	460	.40	12,600	580	.85	14,900	695	1.40	17,000	815	2.40
42"	8,000	200	.06	11,000	300	.20	14,000	400	.50	17,000	500	1.10	20,000	600	2.00	23,000	695	3.10
48"	10,000	175	.08	14,000	260	.30	18,000	345	.75	22,000	430	1.50	26,000	520	2.60	30,000	600	4.25
54"	10,600	150	.10	15,500	220	.35	21,500	300	.85	26,300	375	1.75	31,200	445	3.00	36,000	515	5.00
60′′	14,200	140	.12	20,300	200	.50	26,400	275	1.20	32,600	345	2.40	39,800	415	4.00	45,000	480	6.50
72"	19,200	120	.20	28,000	170	.65	36,500	230	1.65	46,000	285	3.35	54,500	340	5.50	63,500	400	9.25
84"	27,000	100	.25	39,000	150	1.00	51,000	200	2.25	63,000	250	4.50	75,000	300	8.00	85,000	350	12.50



CHAMPION CREAM SEPARATORS

Built For Service Greatest Value in America
All Stand Separators Equipped With Ball Bearings

No. 1½ and No. 3 Bench Separators

No. 250 Bench Separator

No. 300, No. 500, No. 700 and No. 900 Floor Separators

Guaranteed to Skim Clean Guaranteed Durable Guaranteed to Run Easy Easiest to Oil
Easiest to Clean
Easiest to Fill

Stand Separators run on the Highest Grade Radial Ball Bearings, at both top and bottom, saving over 50 percent in friction at those high speed bearings

All Parts coming in Contact with Milk are Triple Tin Plated

Anti-Splash Tank

Equipped with Speed Indicator

Clutch is Automatic—Enclosed in Gear Case on Bronze Gear Shaft; all Gears are Cut Helical or Spiral, and are Absolutely Noiseless

Bowl Lifts Off Spiral Shaft, not Attached to Spiral

Finished Beautiful Enameled Blue with Oil Proof Enamel Baked On

High Grade Machines at Reasonable Prices

Workmanship Guaranteed Perfect

No.	Capacity.	Type.	Height.	Shipping Weight.	Code.
$\frac{1\frac{1}{2}}{3}$	150 lbs. (1 to 2 cows) 300 lbs. (1 to 5 cows) Stand for No. 14 and No. 3	Bench	$\begin{array}{ccc} 22\frac{1}{2} & \text{inches} \\ 22\frac{1}{2} & \text{``} \\ 27 & \text{``} \end{array}$	55 lbs. 60 lbs. 35 lbs.	Soudern Soner Sonetto
250 300 500 700 900	250 lbs. (1 to 3 cows) 300 lbs. (1 to 5 cows) 500 lbs. (1 to 8 cows) 700 lbs. (1 to 14 cows) 900 lbs. (1 to 20 cows)	Bench Floor	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	90 lbs. 165 lbs. 210 lbs. 215 lbs. 220 lbs.	Sonsacars Sonsts Sonticos Sonsaque Sonships





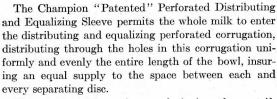
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CHAMPION CREAM SEPARATOR IN DETAIL

The Invention that Brings Results



Perforated distributing and equalizing sleeve which discs fit over, throwing equal flow of milk to every disc, insures clean skimming.



This wonderful invention revolutionizes the centrifugal cream separator:

First, by every disc skimming its equal and full proportion of milk, requiring 25% less discs to skim clean our guaranteed rated capacity.

Second, with less discs the size of the bowl is lower, smaller and lighter.

Third, with less discs, with a smaller and lighter bowl, practically all danger of the bowl ever getting out of balance is eliminated.

Fourth, with the skimming device as one unit it can be washed with water and brush more conveniently and in the greatest hygienic and sanitary manner.

The Champion "Patented" Steel Clutch is positive in action, unbreakable and operates without noise. Its operation is instant and prevents motion of the large gear when the crank is stopped. The cuts show the clutch both disengaged and engaged ready for action.

The Champion "Patented" Elliptical Radial Cushion Spring is in one piece and represents a series of parallel springs, the correct way of making a spring for separator purposes, the proper construction where any spring of that kind is needed.

The Ball Bearings are of the highest grade radial end thrust type, eliminating over 50% of the friction found on the high speed operating points of any plain bearing machine.

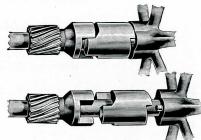
The Champion "Patented" Automatic Oiling System requires attention ONCE WEEKLY by adding fresh oil through the screw plug at the top of the glass oil gauge; the oil to reach up to the oil line as shown thereon.

Proper oiling always in sight when examining the separator.

The Champion "Patented" Speed Indicator by tapping a gong at every revolution of the crank notifies the operator the proper speed is attained when the gong stops ringing, enabling the operator to secure proper skimming without mental thought, or watch to indicate when same is operated at the proper speed.

The Champion "Patented" Separator Bowl, shown in transparent interior sectional illustration, represents the whole milk flowing equally and uniformly through the perforated distributing channels to each and every separator disc from the top to the bottom of the bowl, illustrating as nearly as possible the action of the whole milk entering the bowl, with the cream and skim milk leaving the bowl.

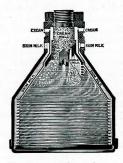
The Champion Gearing, Clutch, Spiral Shaft and Spiral Gear, in its entirety, is of the highest grade metal and highest grade workmanship. The large gear as well as the pinion are cut with helical teeth, insuring strength, quiet running and ease of operation. The spiral shaft is of high grade tool steel; the spiral wheel is the best grade of phosphor bronze, and is cut with helical teeth. All bearings are the best grade of phosphor bronze, and together with the shafts are ground and fit so as to be interchangeable.



A clutch which positively starts a separator instantly.



One Oiler oils every bearing. Glass sight oiler shows when machine is getting oil or needs oil.



Transparent view of complete Bowl.



Champion cream separator bowl parts in order of their assembly show the construction of the entire bowl from top to bottom, indicating its simplicity and its up-to-date high grade construction.



Neck bearing spring with spindle assembly showing radial ball bearings in both upper and lower bearing.



Speed indicator gives the proper audible sign when separator is run at proper speed.



Gearing and Automatic Clutch, all in one unit, lays in an oiltight, dust-proof gear case.



TELEGRAPHIC CODE TO NO. 52 CATALOGUE

Cable Address "Champion Lancaster" [Pennsylvania]

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Habado-Rush . . . ordered and add for immediate shipment . . . Harpoon-Order received too late for filling today, will be shipped tomorrow Habebamus-Rush order given on . . . and add for immediate shipment. Harrow—Must be shipped today, or parties will cancel order. Haben-Rush order given . Harsh—Rush order (by . . .). Habenaria—Rush . . . and enter order for . . . to ship as soon as Harvest-Ship at once, any portion of order. possible. Hash-Ship the whole order in one lot. Habendorum—Rush . . . in order of . . . and follow balance as soon as Hasp—Telegram received; fill order for . Habendos-Rush . . . in order of . . . and follow balance at your Hassock-There is no particular hurry for this order, let it come in earliest convenience. regular time. Habhaft—Rush . . . and enter order for . . . to be shipped . . . Haste—We can ship part of your order as follows . . . will furnish Habicht—Write how soon order for . . . will be shipped. balance in . . Habichuela—Telegraph how soon order for . . . will be shipped. Hasten-We can furnish the following order at once. Habaqui-Ship at once. Hatch—We have shipped the following part of your order; will forward Habest-Ship at once and follow with tracer. Habarala—Ship at once at your earliest convenience. Hatchet—We hold order for further instructions. Habascon—Ship at once if possible, if not possible wire how soon you can Hatchway-What is the earliest date you can fill our order? Hatter—When will goods be shipped that were ordered . . . ? Habasque-Ship at once if possible, if not possible write how soon you Haul-We place our order at once for . . . if you will deliver on . . . can ship. Haunt—Will send regular order by mail. Habebat-Ship at once, in great hurry. Will consider the order filled Haven-Your letter of . . . received and have filled order in accordance today, unless we receive telegram from you stating otherwise. with same. Habit—Advise if order accepted. Havoc-Your order contained in letter of . . . can be executed in . Habitual-All orders are now shipped. Hawk-Your order contained in letter of . . . for . . . cannot be Habitudel-Alter our order to . . Hackle—Are in need of order—when may we expect it? Hawker-Your order for . . . is ready for shipment; we await your Hackney-Are now working on your order. further instructions. Haddock-Are shipping all we can today; will ship balance in . . . Hay—Your order has been filled before receiving your telegram. Haggard-By what line have you shipped? Haze-Your order was for . . Haggle-Can ship immediately upon receipt of order. Heart—Wire lowest discounts on . . Heil-Can be shipped in . . Hearty-Write lowest discounts on . . . Hailstone-Can be shipped at once. Heave—Ship by freight via . . Hake-Can ship in about . . . from receipt of order. Heavy-Ship by freight, route as last. Half-Can ship on or before . . Hector-Ship by rail and lake. Hedge—Ship by all rail. Halibut-Can you execute order for . . . in . . . Heed-Ship by sail from New York. Halloo-Can ship today, if we hear in time. Halter—Can ship in one week from receipt of order if advised at once. Height-Ship by steamer from New York. Hamlet-Can ship within two weeks from receipt of order, if advised at Helm-Ship by Morgan Line from New York. Helmet-Ship by Mallory Line from New York. Hammer-Can ship tomorrow. Helper-Ship by Mallory Line and Sunset Route. Hammock-Can you ship immediately? Hemlock-Ship by Express. Hamper-Cannot ship before . . . have written. Hamstring-Will ship at once. Handle-Do not fill this order until you receive full instructions by mail. Handsome—Enter order for. Hang-Enter order for . . . specifications by mail. 5 each Happen-Gave your agent an order some time ago . . . what is being 10 each Happily—Has our order been shipped yet? 12 each . . Happiness-Have filled your order in accordance with . . . 15 each Harass-Have you not received order for . . . ? Harbor-Hold for further instructions, our order of . . Hardly-How soon can you ship the following if ordered immediately? 25 each. Hardship-Hurry our order; very important. Hardware—If ordered by telegraph promptly, we could ship in . . . Hare—If you cannot ship at once, telegraph how soon. Harem-We could ship in . . Harmful-If you have not shipped the . . . telegraph. When can we expect it then? Harmonic-If you have not shipped the . . . write when we can expect it then. Can ship in 4 days.......Alafec

Can ship in 6 days......Alagaba

Can ship in 8 days.......Alagabmoss

Harmonize-Your order was filled on . . .

Harmony-Not in a particular hurry for the order.

Harp—Order of . . . will be shipped immediately.

Harness—Order of . . . not yet received; send tracer.

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. Donville





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